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THE HOME ENCYCLOPÆDIA

COMPILED AND REVISED TO DATE FROM
THE LEADING ENCYCLOPÆDIAS

WITH MAPS AND ILLUSTRATIONS

VOLUME SEVEN

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THE HOME ENCYCLOPÆDIA.

VOLUME VII.

D I D — D I E

DIDO, or **ELIZA**, the reputed founder of Carthage, was the daughter of Mutgo, Belus, or Agenor, King of Tyre. She may have been a historical character, but the stories told of her by Justin and Virgil differ essentially.

DIDOT, the name of a family of learned French printers and publishers.

FRANÇOIS DIDOT (1689-1757), founder of the family, was born at Paris. He began business as a bookseller and printer in 1713, and among his undertakings was a collection of the travels of his friend the Abbé Prévost, in twenty volumes (1747). **FRANÇOIS AMBROSE DIDOT** (1730-1804), son of François, made important improvements in type-founding, and was the first to attempt printing on vellum paper. **PIERRE FRANÇOIS DIDOT** (1732-1795), brother of the preceding, devoted much attention to the art of type-founding and to paper-making. **HENRI DIDOT** (1765-1852), son of Pierre François, is celebrated for his "microscopic" editions of various standard works, for which he engraved the type when nearly seventy years of age. **DIDOT SAINT-LEGER**, second son of Pierre François, was the inventor of the paper-making machine known in England as the Didot machine. **PIERRE DIDOT** (1760-1853), eldest son of François Ambrose, is celebrated as the publisher of the beautiful "Louvre" editions of Virgil, Horace and Racine. **FIRMIN DIDOT** (1764-1836), second son of François Ambrose, sustained the reputation of the family both as printer and type-founder. **AMBROISE FIRMIN DIDOT** (1780-1876) was the eldest son of the preceding. After receiving a classical education, he spent three years in Greece and in the east; and on the retirement of his father in 1727, he undertook, in conjunction with his brother Hyacinthe, the direction of the publishing business.

DIDRON, **ADOLPHE NAPOLEON** (1767-1866), French archaeologist, was born at Hautvillers, in the department of Marne.

DIDYMUS, of Alexandria, an ecclesiastical writer, born in 309 or 314. Although he became blind at the age of four, before he had learned to read, he succeeded in mastering the whole circle of the sciences then known.

DIE, the capital of an arrondissement in the department of Drôme, in France, is situated on the right bank of the Drôme, at the foot of Mont Glandaz, in a wide and fertile plain. Population (1890), 4,200.

DIE SINKING. The preparation of dies for stamping coins and medals is a work requiring consid-

erable skill and care. The steel selected should be of moderately fine grain and uniform texture, and, when polished, should show no spots or patches under a magnifying glass. Two short lengths having been cut from bars of this, and forged into rough dies, are next made as soft as possible by careful annealing—being put in an iron pot of animal charcoal, heated to a cherry red, and allowed to cool gradually. After being faced up flatly and smoothly in a lathe, they pass into the hands of the engraver, who traces upon them their appropriate images, obverse and reverse, and works these out, with steel tools, in intaglio. (The inscription is generally stamped with punches and hammer.) The new *matrices*, or maternal dies, when, after repeated impressions on clay, etc., and alteration, they are found correct, are ready for hardening—a process simple enough as regards plain steel, but here very critical, seeing that a delicate engraving has to be kept intact. Each matrix is first protected with a mask, composed of fixed oil thickened with animal charcoal, or of lamp-black and linseed oil. They are then placed face downward in a crucible, and burned in animal charcoal. After being heated to a cherry red, they are taken out with a pair of tongs, plunged in a large body of water, moved about rapidly till all noise ceases, and left in the water till quite cool. If the matrix pipes or sings, there is probably a crack in it. The hardened die is next polished and tempered—the former by holding it against a running iron disc coated with flour-emery and oil; the latter by putting it in water, which is gradually raised to the boiling point, then allowing it to cool slowly, or by placing it on a heated bar of iron till it acquires a rich straw color. To increase its strength an iron ring may be shrunk upon it like a mechanical jacket. The matrix, treated as here described, might now be used to multiply coins or medals, but it is preferred to use it for first producing *punches*, or steel impressions in relief. With this view a steel block is procured, softened by annealing, and turned in the lathe, being made flat at the bottom and obtusely conical at the top. The block is put in the bed of a die-stamping press, and the matrix brought down on it with force by means of the central screw. Thus a copy is produced in relief on the conical surface. Further strokes may be required to perfect it, and the punch is therefore first re-annealed (its surface having been hardened by compression), then replaced in the press; the matrix, detached from the screw, is fitted on

to it, and pressed in contact by the descent of a block of steel attached to the screw. Thus, after repeated blows and frequent annealing, the impression is completed, and after being retouched by the engraver is hardened and tempered like the matrix. The matrix is now laid aside, and the punch used to produce any number of steel dies by an operation substantially similar to that by which the punch itself was obtained. These are, of course, *fac-similes* of the matrix, and when completed are used for purposes of coinage. Besides coining and medaling, dies are required for a variety of purposes, such as the manufacture of buttons, steel seals, screws, and ornamental articles of metal, calico printing, etc.

DIEBITSCH - SAPALKANSKI, **HANS KARL FRIEDRICH ANTON**, Count von Diebitsch and Narden, Russian field-marshal, was born in Silesia, May 13, 1785. He entered the Prussian army at the age of twelve; but four years later, by the desire of his father, a Prussian officer who had passed into the service of Russia, he also did the same. He served in the campaign of 1805, and was wounded at Austerlitz, fought at Eylau and Friedland, and after Friedland was promoted captain. During the next five years of peace he devoted himself to the study of military science, engaging once more in active service in the campaign of 1812. He distinguished himself by the recapture of Polozk; and by his defense of an important post he saved Wittgenstein's corps in retreat. He was now raised to the rank of major-general. In conjunction with General Yorck he took possession of Berlin. After the battle Lützen he was sent into Silesia and took part in negotiating the secret treaty of Reichenbach. Having distinguished himself at the battles of Dresden and Leipsic, he was promoted lieutenant-general. In 1814 Diebitsch strongly urged the march of the allies on Paris; and after their entry the Emperor Alexander conferred on him the order of St. Alexander Newski. In 1815 he married, attended the Congress of Vienna, and was afterward made adjutant-general to the emperor. As chief of the imperial staff he accompanied the emperor to Taganrog, and was present at his death. He obtained the confidence of the Emperor Nicholas, and was created baron and afterward count. In the Turkish war of 1828-1829 Diebitsch had the chief command; he took Varna, crossed the Balkan, and concluded peace at Adrianople. His passage of the Balkan is commemorated by his surname, Sabalkanski; it procured him the rank of field-marshal. On the outbreak of the insurrection in Poland, in 1830, he was appointed to the chief command. His good genius, however, now failed him. After the battle of Ostrolenka he transferred his headquarters to Kleckzewo, near Pultusk, where he died of cholera, June 10, 1831.

DIEPENBECK, **ABRAHAM VAN** (1599-1675), was born at Herzogenbusch, and studied painting at Antwerp, where he became one of Rubens' "hundred pupils." Rubens complains in his letters that, being overwhelmed with applications for apprentices' indentures, he refused to accept as disciples even the children of some of his best friends. Diepenbeck was one of those who was fortunate enough to obtain admission to Rubens's workshop. But he was not one of the cleverest of Rubens's followers, and he succeeded, at the best, in imitating the style and aping the peculiarities of his master. We see this in his earliest pictures—a portrait, dated 1629, in the Munich Pinakothek, and a *Distribution of Alms* of the same period in the same collection. Yet even at this time there were moments when Diepenbeck probably fancied that he might take another path. A solitary copperplate, executed with his own hand in 1630, represents a peasant sitting under a tree holding the bridle of an ass, and this is a minute and finished specimen

of the engraver's art which shows that the master might at one time have hoped to rival the animal draughtsmen who flourished in the schools of Holland. However, large commissions now poured in upon him; he was asked for altar-pieces, subject-pieces, and pagan allegories. He was tempted to try the profession of a glass-painter, and at last he gave up every other occupation for the lucrative business of a draughtsman and designer for engravings. Most of Diepenbeck's important canvases are in Continental galleries. The best are the *Marriage of St. Catherine*, and *Mary with Angels Waiting over the Dead Body of Christ*, in the Belvedere at Vienna, the first a very fair specimen of the artist's skill; the second, a picture of more energy and feeling than might be expected from one who knew more of the outer form than of the spirit of Rubens. His death took place in December, 1675, and his funeral was celebrated at St. Jacques, of Antwerp, on the 31st day of that month.

DIEPPE, a seaport town of France, at the head of an arrondissement in the department of Seine-Inférieure, thirty-eight miles north of Rouen and 125 northwest of Paris by rail.

DIES, **CHRISTOPH ALBERT** (1755-1822), German landscape painter, was born at Hanover.

DIEST, a town and fortress of Belgium, in the province of Brabant, and the arrondissement of Löwen, is situated on the Demer, twenty-eight miles E. by N. of Brussels.

DIET (German, *Reichstag*). The origin of the German Diet is to be sought in the national assembly, which was a common intuition of the Teutonic race. From the earliest recorded times we find all leading questions first discussed by the chiefs and then referred to the assembly of the clan or tribe, in which every freeman had a voice.

The earliest Diets of the German or Holy Roman Empire were assemblies in which the monarch deliberated with his subjects on the common interests of the empire. Originally all members were bound by their feudal tenure to be present, and if absent they not only forfeited their vote but were liable to fine. Thus the Diet was a feudal, not a representative, Parliament. As by degrees the feudatories of the emperor turned into independent sovereigns, the Diet became nothing more than a congress of princes. The emperor, instead of presiding in person, was represented by a delegate called principal commissarius, and the princes sent envoys, the right of suffrage being no longer personal, but attached to certain territories or districts.

At first the emperor was, in theory at least, elected by universal suffrage; a candidate was chosen by the chief men, and their nominee approved by the people. Thus we read that at the election of Conrad II. 50,000, and at that of Lothaire II. 60,000 persons were present. In time this custom of nominating the emperor grew into an established right, which, under the name of *pretaxation*, was arrogated by the chief princes of the empire. Thus the chief function of the Diet, the choice of an emperor, became the prerogative of a few of its most powerful members, who claimed the right not only of election but of deposition. Thus in 1294 Adolphus of Nassau was deposed, and Albert of Austria chosen in his stead. The right of the electors and the forms and rules of election were defined and settled by the famous instrument of Charles IV. known as the Golden Bull, 1356.

The Diet consisted of three bodies, who met and voted in separate colleges—(1) the electoral college (2) the princes of the empire spiritual and temporal, (3) the free imperial cities.

In a law of Otho IV. (1208), we find the right of

electing an emperor vested in the electoral college of seven. These consisted of three spiritual princes—the archbishops of Mentz, Treves, and Cologne—and four secular electors—the Duke of Saxony, the Count Palatine of the Rhine, the King of Bohemia, and the Margrave of Brandenburg. The former sat as recognized heads of the German Church. The latter would naturally have been the Dukes of Saxony, Franconia, Swabia, and Bavaria; but when Bavaria was united with the County Palatine its right was transferred to Bohemia; that of Swabia was, on the accession of Frederick (who by his election was incapacitated from voting), delegated to Brandenburg, and by it retained; and probably that of Franconia was for similar reason forfeited.

DIETETICS. The application of science to the regulation of the continuous demands of the body for nutriment aims mainly at three objects—Health, Pleasure, and Economy.

It is absolutely essential that the fleshy machinery for doing work should be continuously replaced by flesh food, as it becomes worn out. Nitrogenous aliment after a few chemical changes replaces the lost muscle which has passed away in the excretions; just as the engineer makes ore into steel and renews the corroded boiler plate or thinned piston.

Small quantities of dilute alcoholic liquids taken with meals slightly increase the activity of the renewal of the nitrogenous tissues, mainly muscle; that is to say, there is a more rapid reconstruction of those parts, as is shown by the augmented formation of urea and the sharpened appetite. Life is fuller and more complete, old flesh is removed and food appropriated as new flesh somewhat more quickly, than when no alcohol is ingested. There appears to be a temporary rise in the digestive powers of the stomach, which is probably the initiative act. The nerve functions are blunted, and a lessened excretion of phosphorus exhibits a temporary check in the wear and renewal of the nerve tissue. The vital capacity of the lungs, as indicated by the spirometer, is reduced, showing a diminished oxidation of the blood.

DIETRICH, CHRISTIAN WILHELM ERNST (1712-1774), was born at Weimar, where he was brought up early to the profession of art by his father Johann George, then painter of miniatures to the court of the grand duke. Being sent to Dresden to perfect himself under the care of Alexander Thiele, he had the good fortune to finish in two hours, at the age of eighteen, a picture which attracted the attention of the King of Saxony. Augustus II. was so pleased with Dietrich's readiness of hand that he gave him means to study abroad, and visit in succession the chief cities of Italy and the Netherlands. There he learnt to copy and to imitate masters of the previous century with a versatility truly surprising. Winckelmann, to whom he had been recommended, did not hesitate to call him the Raphael of landscape. Yet in this branch of his practice he merely imitated Salvator Rosa, Ruess, and Everaengen. He was more successful in aping the style of Rembrandt, and numerous examples of this habit may be found in the galleries of St. Petersburg, Vienna, and Dresden; indeed, there are pictures acknowledged to be bearing the fictitious dates of 1636 and 1638, and the name of Rembrandt. Among Dietrich's cleverest reproductions we may count that of Ostade's manner, the *Itinerant Singers* at the National Gallery. His skill in catching the character of the later masters of Holland is shown in candle-light scenes, such as the *Peep-Show* at St. Petersburg, where he is easily reminded of Godfried Schalcken. Dietrich tried every branch of art except portraits, painting

Italian and Dutch views alternately with Scripture scenes and still life. In 1741 he was appointed court painter to August III. at Dresden, with an annual salary of 400 thalers (£60), conditional on the production of four cabinet pictures a year. This condition, no doubt, accounts for the presence of fifty-two of the master's panels and canvases in one of the rooms at the Dresden Museum. These pieces enable the spectator, if careless of more serious occupation, to study the numerous varieties of a changing style. It is needless, perhaps, to add that Dietrich, though popular and probably the busiest artist of his time, never produced anything of his own; and his imitations are necessarily inferior to the originals which he affected to copy. His best work is certainly that which he gave to engravings. A copious collection of these at the British Museum, produced on the general lines of earlier men, such as Ostade and Rembrandt, reveal both spirit and skill. Dietrich, after his return from the Peninsula, generally signed himself "Dietericij," and with this signature most of his extant pictures are inscribed. His death took place at Dresden, after he had successively filled the important appointments of director of the school of painting at the Meissen porcelain factory and professor of the Dresden Academy of Arts.

DIEZ, FRIEDRICH CHRISTIAN, the founder of Romance philology, was born at Giesesen, in Hesse-Darmstadt, March 15, 1794, and died at Bonn, May 29, 1876. He was educated first at the gymnasium and then at the university of his native town. There he studied classics under Welcker, who had just returned from a two years' residence in Italy to fill the chair of archaeology and Greek literature. It was Welcker who kindled in him a love of Italian poetry, and thus gave the first bent to his genius. In 1813 he joined the Hesse corps as a volunteer and served in the French campaign. Next year he returned to his books, and this short taste of military service was the only break in a long and uneventful life of literary labors. By his parents' desire he applied himself for a short time to law, but a visit to Goethe in 1818 gave a new direction to his studies, and determined his future career. Goethe had been reading Raynouard's *Selections from the Romance Poets*, and advised the young scholar to explore the rich mine of Provençal literature which the French savant had opened up. This advice was eagerly followed, and henceforth Diez devoted himself to Romance literature. After supporting himself for some years by private teaching, he removed in 1822 to Bonn, where he held the position of privat-docent, which is the lowest grade of the German professoriate. In 1823 he published his first work, *An Introduction to Romance Poetry*; in the following year appeared *The Poetry of the Troubadours*, and in 1829 *The Lives and Works of the Troubadours*. In 1830 he was called to the chair of modern literature. The rest of his life was mainly occupied with the composition of the two great works on which his fame rests, the *Grammar of the Romance Languages*, 1836-1844, and the *Lexicon of the Romance Languages—Italian, Spanish, and French*, 1853.

DIFFERENTIAL CALCULUS. See INFINITESIMAL CALCULUS.

DIFFUSION. Some liquids, such as mercury and water, when placed in contact with each other do not mix at all, but the surface of separation remains distinct, and exhibits the phenomena described under **CAPILLARY ACTION**. Other pairs of liquids, such as chloroform and water, mix, but only in certain proportions. The chloroform takes up a little water, and the water a little chloroform; but the two mixed liquids will not mix with each other, but remain in contact separated by a surface showing capillary phenomena. The

two liquids are then in a state of equilibrium with each other.

When two fluids are capable of being mixed, they cannot remain in equilibrium with each other; if they are placed in contact with each other the process of mixture begins of itself, and goes on till the state of equilibrium is attained, which, in the case of fluids which mix in all proportions, is a state of uniform mixture.

This process of mixture is called diffusion. It may be easily observed by taking a glass jar half full of water and pouring a strong solution of a colored salt, such as sulphate of copper, through a long-stemmed funnel, so as to occupy the lower part of the jar. If the jar is not disturbed we may trace the process of diffusion for weeks, months, or years, by the gradual rise of the color into the upper part of the jar, and the weakening of the color in the lower part.

DIGBY, SIR KENELM, an eminent English physical philosopher, born at Gothurst, Buckinghamshire, on July 11, 1603. Having finished his education at Oxford, he went abroad in 1621, and traveled in France, Spain, and Italy. On his return he was knighted, and received from Charles I. the appointments of gentleman of the bed-chamber, commissioner of the navy, and governor of the Trinity House. At the head of a small squadron, which he equipped at his own expense, he sailed in 1628 against the Algerines, and afterward defeated the Venetians near the port of Scanderon. During a brief stay in Paris he joined the Church of Rome. Having returned to England in 1638, he espoused the cause of the king, and was imprisoned in Winchester House by order of the Parliament. He was, however, liberated at the request of the French queen-dowager in 1643, and retired to France, where he was taken into the confidence of the court, and enjoyed the friendship of Descartes and other learned men. Here he wrote his *Treatise on the Nature of Bodies*, his *Treatise on the Soul*, *Peripatetic Institutions*, and other works. He visited England, after the defeat of the Royalist party, but the Parliament refused to allow him to remain. Banished from England upon pain of death if he returned, he resumed his residence in France, where he was treated with the highest respect, and was intrusted with an embassy to several of the courts of Italy. He returned again to his native country during the Protectorate of Cromwell, and seemed to be more zealous for the advancement of the interests of the Commonwealth than befitted a staunch royalist. He used his influence to reconcile the Catholics to the Protectorate on condition of their being secured the free exercise of their religion. With Cromwell he was on terms of intimate friendship, the bond of sympathy being probably not so much politics, as a common interest in the new-born science of physics. At the Restoration he returned finally to London, where he died in 1665.

DIGESTIVE ORGANS. The organs of digestion, or alimentary apparatus, are for the purpose of receiving the food or aliment; of converting that portion of the food which is digestible into chyle, so that it may be absorbed and applied to the nourishment of the body; and of transmitting that which is indigestible onwards to be excreted.

The digestive organs in man comprise the entire alimentary tract, beginning with the lips and ending with the anal orifice of the colon. The first act of digestion (after prehension or the taking of food) is mastication, which is performed by means of the teeth. Then follows insalivation, which is performed by the salivary glands, the function of which is to render the food a pasty mass, ready for deglutition or swallowing. The saliva also converts all the starchy portions of the food into

sugar, and has, perhaps, some other obscure chemical action which science as yet has not discovered. The food is next pushed backward by the tongue into the pharynx, and thence by muscular peristaltic action into the stomach, which is an elongated pouch. Here the food remains a varying length of time (usually 2 or 2½ hours), and undergoes chymification. It then passes into the cæcum, and here is chylified, and at this stage of the process the hepatic and biliary ducts and the liver perform their functions, which are to absorb the nutritious parts of the food, and conduct them into the circulation, while the waste portions are carried through the intestinal canal into the rectum, and thence expelled through the anus.

DIGIT (Lat. *digitus*, the finger), a term applied to the ten symbols of number 0, 1, 2, etc., to 9; thus, 305 is said to be a number of three digits. Numbers were originally indicated by the fingers, and hence the name. Astronomers use digit to signify a twelfth part of the diameter of the sun or moon, and speak of an eclipse of seven digits, meaning that seven-twelfths of the diameter is covered.

DIGITALIS, or **FOXGLOVE**, a genus of biennial and perennial plants of the natural order *Scrophulariaceæ*. It is a most valuable medicine, acting as a heart tonic and stimulant, in which action it is unique among medicines. The dose is from five to sixty drops of the tincture.

DIGITIGRADA (Lat. finger-walking), in the zoological system of Cuvier, one of the tribes of the *Carnivora*, distinguished by walking on the toes alone, the heel not touching the ground. Among the digitigrade quadrupeds are included the most carnivorous of the *Carnivora*, the feline and canine families, hyenas, civets, weasels, etc. The weasel family (*Mustelidæ*), however, forms a connecting link, in respect to the character derived from the mode of walking, between the tribe digitigrada, and the tribe plantigrada, being, in fact, semi-plantigrade, and not walking on the mere tips of the toes, like the other digitigrada.

DIGNE, the chief town of the department of Basses-Alpes, in France, about seventy miles northeast of Marseilles. Population (1890), about 6,000.

DIJON, the chief town of the department of Côte-d'Or in France, and formerly capital of the province of Burgundy, is situated at the foot of Mont Affrique, in a fertile plain, on the Burgundy canal, and at the confluence of the Ouche and Suzon. Dijon does an important trade in cereals, and is the chief emporium for Burgundy wines. The population of the commune is 42,573; that of the town, 40,116.

DILAPIDATION, in the law of England, is where the incumbent of a parsonage permits his house or outbuildings to suffer for want of necessary repairs. Such damage he may be compelled to attend to under penalty of an action under the Statute of Dilapidations.

DILEMMA, a conditional syllogism, with two or more antecedents in the major, and a disjunctive minor. The following dilemma, of the kind called destructive, will perhaps convey a clearer notion than any definition: "If this man were wise he would not speak irreverently of Scripture in jest; and if he were good, he would not do so in earnest; but he does it, either in jest or earnest; therefore, he is either not wise, or not good." There being two conclusions, one or the other of which your opponent must admit, he is in a manner caught between them; hence we speak of the horns of a dilemma.

DILETTANTE (pl. *dilettanti*, Ital.), in its original sense, synonymous with an *amateur*, or lover of the fine arts. It is often used as a term of reproach, to signify an amateur whose taste lies in the direction of

what is trivial and vulgar, or of a critic or connoisseur whose knowledge is mere affectation and pretence.

DILIGENCE, the name given in France to a public conveyance of the nature of a stage coach. It is a strongly built vehicle, with four broad wheels, and is drawn by four horses. It consists of three chief compartments; the front, called the *coupe*, for three persons; the second, called the *interieur* for six persons; and, lastly, the *rotonde*, entered from behind, for six persons. Aloft, in front, is the *banquette*, where the *conducteur* is seated; and behind this, underneath a thick leather covering, passengers are sometimes huddled among baggage.

DILIGENCE, in law, is the care which a person is bound to exercise in his relations with others. The possible degrees of diligence are of course numerous, and the same degree is not required in all cases.

DILKE, SIR CHARLES WENTWORTH, baronet, born in London, February 13, 1810. He was one of the most zealous promoters of the Great Exhibition (1851) in London and a member of the executive committee. At the close of the exhibition he was honored by foreign sovereigns, and the Queen offered him knighthood, which, however, he did not accept; he also declined a large remuneration offered by the royal commission. In 1853 Dilke was one of the English commissioners at the New York Industrial Exhibition, and prepared a report on it. He was appointed one of the five royal commissioners for the London Exhibition of 1862; soon after the death of the Prince Consort he was created baronet by the Queen. In 1865 he entered Parliament as member for Wallingford. In 1869 he was sent to Russia as representative of England at the Horticultural Exhibition held at St. Petersburg. His health, however, had been for some time failing, and he died suddenly in that city, May 10, 1869.

DILL, a genus of umbelliferous plants having compound leaves; umbels without involucre; yellow flowers, with calices incomplete above; and lenticular fruit, compressed from back to front, flattened at the margin, and presenting on each side three ridges. The leaves of the dill are used in soups and sauces, and, as well as the umbels, for flavoring pickles.

DILLEN, (DILLENIUS) JOHANN JAKOB, botanist, was born at Darmstadt in 1687, and died in 1747.

DIMENSION. In Geometry, a line, whether straight or curved, has only one dimension, or measurement—namely, length; a surface has two—length and breadth; and a solid has three dimensions—length, breadth, and thickness, or depth. These three measurements or dimensions determine all forms of extensions. In Algebra, the term dimension is applied in much the same sense as degree, to express the number of literal factors that enter into a term.

DIMINUTIONS, a word sometimes used in Heraldry for differences, marks of cadency, and brisures, indifferently.

DIMINUTIVES are forms of words, chiefly of substantives, in which the primitive notion has become lessened or diminished, as hillock = a little hill. With littleness is associated the idea of neatness, and also of breeding protection; hence diminutives are used as terms of endearment; sometimes they imply contempt.

DIMITY, a stout figured cotton-fabric, used chiefly for bed-hangings. The figure or stripe is raised on one side, and depressed on the other, so that the two faces present reversed patterns. Dimity is commonly white, or of a single color; but variegated dimities are now made, the pattern and the ground being of different colors.

DINAJPUR, a district of British India, within the Kuch-Bihar division or commissionership,

under the lieutenant-governor of Bengal. The district, which occupies an area of 4,126 square miles, is a triangular tract of country with the acute angle toward the north, lying between the districts of Jalpaiguri and Rangpur on the east, and Purniah on the west; on the south it is bounded by the districts of Bográ, Rájshahi and Maldah. The population in 1889 amounted to 1,601,924.

DINAJPUR, the principal town and administrative headquarters of the above district, is situated on the east bank of the Purnabhábá river. Population, 14,000.

DINAN, a town of France, in the department of Côtes du Nord, about fifteen miles inland, on the left bank of the Rance. The principal event in the history of Dinan is the siege by the English under the Duke of Lancaster, in 1359, during which Duguesclin and an English knight called Thomas of Canterbury engaged in single combat. The memory of the Breton hero's victory is preserved by the name of the *Place Duguesclin*, which marks the site of the lists. Population, 8,000.

DINANT, a town of Belgium, at the head of an arrondissement in the province of Namur, about twelve miles south of Namur, on the railway between that city and Givet. Population (1890), 7,000.

DINAPUR, a town and military station of British India, is situated on the right or south bank of the Ganges, and on the East Indian railway, in the district of Patna, province of Behar, about ten miles west of Patna. Population, about 18,000.

DINARCHUS, the orator, son of Sostratus, was born at Corinth about 361 B.C. Thus, like at least one greater member of the decade, Lysias, this last of the ten Attic orators was not an Athenian citizen. But his career at Athens, as a resident alien, was at least commenced early in life. When not more than twenty-five, he was already active as a writer of speeches for the law courts. He had been the pupil of both Theophrastus and of Demetrius Phalereus, and had early gained a certain fluent force, and a versatile command of style, which gave him some oratorical repute. His first important contact with public life was in 324 B.C. The Areopagus, after inquiry, reported that nine men had taken bribes from Harpalus, the fugitive treasurer of Alexander. Ten public prosecutors were appointed. Dinarchus wrote, for one or more of these prosecutors, the three speeches which are still extant—one *Against Demosthenes*, one *Against Aristogiton*, one *Against Philocles*. The authenticity of the speech against Demosthenes was indeed denied by Demetrius of Magnesia, chiefly on the ground that it is largely composed of matter taken from *Æschines*. Westermann went further, and doubted the genuineness of all three speeches. But Schäfer—who justly remarks that the absence of originality and of character is itself characteristic of Dinarchus—is probably right in accepting the general opinion that they are authentic.

DINGWALL, a royal burgh of Scotland, the county town of Ross-shire, fifteen miles northwest of Inverness, at the junction of the Sutherland and Dingwall and Skye railways. Population, 2,800.

DINKELBUHL, a town of Bavaria, in the department of Mittelfranken, or Middle Franconia, on the Würzburg, about forty miles by rail from Donauwörth, where the river joins the Danube. Population, 6,000.

DINOCRATES (called by Pliny Dinocrates), a Greek architect, who lived in the reign of Alexander the Great. He applied to that king's courtiers for an introduction to the Macedonian king, but was put off from time to time with vain promises. Impatient at the delay, he is said to have laid aside his usual dress, besmeared his body with oil in the manner of an athlete, thrown a lion's skin over his shoulders, and, with his

head adorned with a wreath of palm branches, and a club in his hand, made his way through a dense crowd which surrounded the royal tribunal to the place where the king was dispensing justice. Amazed at the strange sight, Alexander asked him who he was. He replied that he had come into the royal presence to make known a scheme which would be worthy of the consideration of the greatest monarch in the world. Out of Mount Athos, a mountain rising like a pyramid to a height of 6,780 feet, topped with a cone of white limestone, he proposed to construct the gigantic figure of a man, holding a large city in his right hand, while in his left he held a gigantic tank large enough to contain all the water from the brooks in the peninsula. The story goes that the king was not displeased with the idea, but, as he thought it chimerical, it came to nothing. Alexander, however, was so delighted with the man, and with his bold and daring conceptions, that he carried Dinocrates with him when he went on his campaigns against Darius. He was employed by the king to design and lay out the city of Alexandria. This city was founded in 332 B.C., but the untimely death of Dinocrates prevented it from assuming the proportions intended by its designer. The Ephesians, whose temple of Diana had just been burnt down, employed him in its reconstruction. But perhaps the most original of all his conceptions was his design for a temple to Arsinoë, wife of Ptolemy II., king of Egypt. The roof of the building was to have been composed of a mass of loadstones, strong enough to hold floating in the air, and suspended within it, an iron statue of the queen.

DINORNIS, a genus of gigantic Struthious birds, believed to be extinct, which in post-Pliocene times must have formed a principal feature in the fauna of New Zealand.

DINOTHERIUM, an extinct mammal, fossil remains of which occur in the Miocene beds of France, Germany, Greece, and Northern India. These until lately consisted exclusively of teeth and the bones of the head. An entire skull, obtained from the Epplesheim beds of Hesse Darmstadt in 1836, measured four and one-half feet in length and three feet in breadth, and thus indicated an animal exceeding the elephant in size.

DIOCESE, primarily meaning administration, then the territorial circumscription in which administration was exercised—was first used to denote the Greek provinces of the Roman Empire, or, more properly, the proportion of a province ruled by a *proprætor*. Bingham says that the division of the empire into clerical dioceses was in the time of Constantine, whereas the division into provinces was much anterior. He goes on to show that the primitive church followed exactly the example of the empire in her territorial arrangements. As in every metropolis of each province there was a magistrate with authority over the magistrates of each city, so in every metropolis there was a bishop, whose authority extended over the entire province, who was thence called "metropolitan" or "primate," as being the first or principal bishop of the province. And everywhere the Episcopal sees were under the authority of the bishop of the civil metropolis, except in Africa, where the primate was usually the senior bishop of the province. The term "diocese," however, was sometimes used in the more comprehensive, and the term province in the less comprehensive sense, as appears from the *Notitia dignitatum Imperii*, drawn up, as it would seem, in the time of the Emperors Arcadius and Honorius (see Bingham, *loc. cit.*) The territorial division, however, as given in the *Notitia*, was purely civil. But Bingham tells us that, though we have no equally ancient account of the ecclesiastical division of the empire, yet if we compare the fragmentary bits of information

which may be picked out of the acts of and subscriptions to the earlier councils with later notices, it will be seen that the ecclesiastical very exactly followed the civil distribution.

It may be mentioned that, before the fourth century, the term "parish" was often used indiscriminately with the word "diocese," a circumstance which has caused ecclesiastical antiquarians to expend much erudition in showing that, despite the confusion of terms, the thing intended corresponded to our idea of a diocese, and not to our idea of a parish.

DIOCLETIAN. **VALERIUS DIOCLETIANUS** (245-313), Roman emperor, was born of obscure parents near Salona, in Dalmatia, and reigned from 284 to 305 A.D. He entered the army and served with high distinction, held important commands under the Emperors Probus and Aurelian, and accompanied Carus to the Persian war. After the death of Numerianus he was chosen emperor by the troops at Chalcedon, and slew with his own hands Arrius Aper, the prefect of the prætorians. His advent to the throne marks the commencement of the era of Diocletian, August 29, 284. Having been installed at Nicomedia, he received general acknowledgment after the murder of Carinus. He appointed Maximian Augustus in 286, and Constantius Chlorus and Galerius, Cæsars in 292. Each of the four rulers was placed at a separate capital—Treves, Sirmium, Milan, Nicomedia. This amounted to an entirely new organization of the empire, on a plan commensurate with the work of government which it now had to effect. At the age of fifty-nine, exhausted with labor, he abdicated his sovereignty on May 1, 305, and retired to Salona, the place of his birth, where he died eight years afterward. His reign was memorable for the persecution of the Christians.

DIODATI, **GIOVANNI**, a Swiss theologian of the Reformed Church, was born at Geneva on June 6, 1576, of a noble family originally belonging to Lucca, which had been expatriated for the profession of Protestantism. In 1608 he became a pastor, or parish minister, at Geneva, and in the following year he succeeded Beza as professor of theology. He held a high place among the reformers of Geneva, by whom he was sent on a mission to France in 1614. He had previously visited Italy, and made the acquaintance of Sarpi and Fulgenzio, whom he endeavored unsuccessfully to engage in a reformation movement. In 1618-19 he attended the Synod of Dort, and took a prominent part in its deliberations, being one of the six divines appointed to draw up the account of its proceedings. He was a thorough Calvinist, and entirely sympathized with the condemnation of the Arminians. In 1645 he resigned his professorship, and he died at Geneva on October 3, 1649.

DIODORUS, named **SCULUS**, a Greek historian, born at Agrigum, in Sicily. Of his life we know nothing except what he himself has narrated, that, in prosecution of his historical researches, he undertook frequent and dangerous journeys, and studied Latin at Rome. His history occupied thirty years in writing, and was at last completed in forty books.

DIOGENES, of Apollonia, in Crete, a celebrated natural philosopher who flourished at Athens about 460 B.C. He was a pupil of Anaximenes and a contemporary of Anaxagoras. He believed air to be the source of all being, and all other substances to be derived from it by condensation and rarefaction. His chief advance upon the doctrines of his master is that he asserted air, the primal force, to be intelligence—"the air which stirred within him not only prompted but instructed. The air as the origin of all things is necessarily an eternal, imperishable substance, but as soul it is also necessarily endowed with consciousness." Mr. Lewes

and Mr. Grote assign to him a higher place in the evolution of philosophy than either Hegel or Schwegler.

DIOGENES (about 412-223 B.C.), the famous Cynic philosopher, was the son of Icesias, a money-changer of Sinope, in Pontus. Having been detected in adulterating coin, his father and he were compelled to leave their native city. According to another account, however, Icesias died in prison, and Diogenes fled to Athens with a single attendant. On his arrival in that city he dismissed his attendant with the piquant question, "If Manes could live without Diogenes, why not Diogenes without him?" and on the same principle he denuded himself of all superfluous dress, furniture, and even ideas. A wooden bowl, which, with his cloak and wallet, formed his only movables, is said to have been immediately discarded when he saw a boy drinking water from the hollow of his hand. The fame of Antisthenes soon attracted him to Cynarges, and the pertinacity with which, for the sake of wisdom, he not only endured the scoffs but volunteered to submit to the blows of the great teacher, soon procured him a favorable reception from the whole Cynical school. The favorite pupil, however, soon outstripped the master in the extravagancies of his life, and the pungent keenness of his sarcasms. That he took up his abode in a cask belonging to the temple of Cybele is a circumstance liable to suspicion, from being more frequently alluded to by the satirists than by the biographers of Diogenes. That he used to inure himself to the vicissitudes of the weather by rolling himself in hot sand in summer, and in winter by embracing statues covered with snow, are facts resting on the authority of all the ancient historians. His numerous witty apothegms are preserved by Diogenes Laertius. After his voyage to Aëgina, during which he fell into the hands of pirates, who sold him as a slave in Crete, the conduct of Diogenes appears in a much less ridiculous light. With characteristic boldness he proclaimed to his captors that he knew no trade except "to govern men," and wished to be sold "to a man that wanted a master." Such a purchaser he seems to have found in Xenias, who took him to Corinth to superintend the education of his children. There he spent the rest of his life; and he is said to have reached an extreme old age. There at the Isthmian games he taught the assembled concourse in the Kranelon; and thither he attracted a crowd of disciples when Antisthenes had ceased to tickle their ears in Cynosarges. There, too, in all probability, his famous interview with Alexander took place, in which the only favor he had to beg of the prince was that he would not stand between him and the sun — when Alexander is said to have exclaimed, "If I were not Alexander, I would be Diogenes." To Athens Diogenes seems never to have returned. Of his death, which is said to have taken place on the same day with that of Alexander the Great, there are various conflicting accounts. That he perished by the bite of a dog, or from the immoderate use of raw flesh, or by his own hand, is now generally disbelieved. It is more probable that his death was calm and peaceful; and in spite of his desire to be thrown to the beasts of the field, he received from Xenias an honorable interment. In the days of Pausanias the Corinthians pointed with pride to his grave; and on the isthmus there was a pillar erected to his memory, on which, as the self-chosen symbol of his life, there rested a dog of Parian make. His alleged connection with Lais, and the open indecencies of which he is said to have been guilty, have thrown a shade upon his character. The former is, however, it must be confessed, exceedingly improbable; and the latter charge was undoubtedly exaggerated, if it was not originated, by the shameless excesses of the later Cynics. The Cynics answered

arguments by facts. When some one was arguing in support of Zeno, of Elea's, notion respecting the impossibility of movement, Diogenes rose and walked. Definitions might prove that there was no motion, but definitions were only verbal, and could be answered by facts. This appeal to common sense, the *argumentum ad bacillum*, was of more value and importance in ethical than in speculative philosophy.

DIOGENES LAËRTIUS, the biographer of the Greek philosophers, is supposed by some to have received his surname from the town of Laerte, in Cilicia, and by others from the Roman family of the Laertii. Of the circumstances of his life we know nothing. The date at which he wrote—probably the reign of Septimius Severus (193-211)—is known only from conjecture. His own opinions are equally uncertain. By some he was regarded as a Christian; but it seems more probable that he was an Epicurean. The work by which he is known professes to give an account of the lives and sayings of the Greek philosophers. Although it is at best an uncritical and unphilosophical compilation, its value, as giving us an insight into the private life of the Greek sages, justly led Montaigne to exclaim that he wished that instead of one Laertes there had been a dozen. In the commencement of the work he divides philosophers into the Ionic and Italic schools. The biographies of the former begin with Anaximander, and end with Clitomachus Theophrastus, and Chrysippus; the latter begins with Pythagoras, and ends with Epicurus. The Socratic school, with its various branches, is classed with the Ionic; while the Eleatics and skeptics are treated under the Italic. The whole of the last book is devoted to Epicurus.

DIOMEDES, son of the impetuous Tydeus, is a hero of the Ætolian and Argo-Theban legends. He is in the *Iliad* the leader of the tribes which belong to the government of the Amythionæ. A favorite of Athene, from whom he received the gift of immortality, he does not spare even gods if she is standing by his side. He carried off the Trojan Palladium and brought it to Argos, where it was preserved by his descendants. He was known in many other places as a devotee of Athene and a supporter of her worship.

DION, of Syracuse (408-353 B.C.), was the son of Hipparinus, and brother-in-law of Dionysius the Elder. In his youth he was an ardent admirer and diligent pupil of Plato, whom Dionysius had invited to Syracuse; and he used every effort to promote the carrying out of his master's maxims in the administration of the kingdom. His near relationship to the despot gave him great influence at court, and also enabled him to amass considerable wealth. Accordingly, on the accession of the younger Dionysius, the stern morality of the philosopher stood in marked contrast to the dissolute character of the prince. An antagonism thus silently sprang up between the two; and the proposal of Dion to invite Plato again to Syracuse was made the occasion of an open rupture. To counteract the influence of that distinguished philosopher, the enemies of Dion obtained the recall of the historian Philistus, who had already signaled himself as the faithful supporter of despotic power. This artful courtier quickly regained his ascendancy over the mind of Dionysius, and was at length successful in procuring the banishment of Dion. The exiled philosopher retired to Athens, where he was at first permitted to enjoy his revenues in peace; but the intercessions of Plato served to exasperate the tyrant, and at length provoked him to confiscate the property of Dion, and give his wife to another. This last outrage roused Dion to seek the liberation of his country by force of arms. Assembling a small force at Zacynthus, he sailed to Sicily, and in the absence of Diony-

sius, was received with demonstrations of joy. He succeeded in defeating the forces of the tyrant, but was himself soon after supplanted by the intrigues of Heraclides. Again he was banished, but the incompetency of the new leader soon led to his recall. He had, however, scarcely made himself master of Sicily when the people began to express their discontent with his tyrannical conduct, and he was assassinated by Calphurnus, an Athenian who had accompanied him in his expedition.

DION CASSIUS COCCEIANUS, the celebrated historian of Rome, was born at Nicæa, in Bithynia, 155 A.D. When a young man he accompanied his father to Cilicia, of which he had the administration; and on his father's death he went to Rome, where in the last year of the reign of Marcus Aurelius, or immediately after the death of that emperor, he was received into the senate. During the reign of Commodus, Dion continued to practice as an advocate at the Roman bar, and held the offices of *ædile* and *quæstor*. He was raised to the prætorship by Pertinax, but did not assume office till the reign of Septimius Severus, with whom he was for a long time on the most intimate footing. By Macrinus he was intrusted with the administration of Pergamus and Smyrna; and on his return to Rome he was raised to the consulship about 220. After this he obtained the proconsulship of Africa, and again on his return was sent as legate successively to Dalmatia and Pannonia. He was raised a second time to the consulship by Alexander Severus, in 229; but under pretext of suffering from a diseased foot, he soon after retired to Nicæa, where he died. The date of his death is unknown. Previous to writing his history Dion Cassius had inscribed to the Emperor Severus an account of various dreams and prodigies which had presaged his elevation to the throne, and had also written a biography of the Emperor Commodus, which was afterward incorporated into his larger work. The history of Rome, which consisted of eighty books — and, after the example of Livy, was divided into decades — began with the landing of Æneas in Italy, and was continued as far as the opening of the reign of Alexander Severus. The first twenty-four books exist only in fragments; from the 36th to the 54th, the work is extant complete; from the 55th to the 60th, it is probably an abridgment, and besides these, parts of the 71st and 75th books have also been recovered. The diligence of Dion as a historian is undoubted, and the various important offices which he held under the emperors gave him valuable opportunities for historical investigation.

DION CHRYSOSTOM was born at Prusa, in Bithynia, about the middle of the first century. He visited Egypt with his father at an early period of his life, and went to Rome during the reign of Domitian. Being implicated in a plot against the tyrant, Dion fled from the capital, and wandered about in Thrace, Mysia, Scythia, and the other countries of the Getæ, with only Plato's *Phædo*, and Demosthenes' *On the Embassy* in his possession, till the accession of Nerva, when he was allowed to return. With Nerva and Trajan he continued on the most friendly footing. He retired to Prusa for a short time; but having been accused of peculation and treason, he returned to Rome, where he remained till his death. Eighty orations of his are extant entire, and there are fragments of about fifteen others. They are written in a lucid and elegant style, and treat mostly of political, ethical, and mythological subjects.

DIONYSIA, or BACCHANALIA, were festivals in honor of DIONYSIUS (*q.v.*) generally, but in particular the term refers to the festivals celebrated in Attica and by the branches of the Attic-Ionic race in the islands and in Asia Minor.

DIONYSIUS, THE ELDER, tyrant of Syracuse, was born about 430 B.C. He began life as a clerk in a public office, and first took part in political affairs during the disensions that followed the destruction of the Athenian expedition. He was wounded in the attempt of Hermocrates to seize upon Syracuse; and during the disasters inflicted by the Carthaginians who had invaded the island, he succeeded, along with Philistus and Hipparinus, in procuring the deposition of the Sicilian generals, and was himself included in the number appointed in their stead. By intriguing with the inhabitants of Gela, which he had been sent to relieve, and spreading insinuations of treachery in regard to his colleagues, he was ultimately invested with the supreme command; and by the help of a large body-guard he soon made himself independent of the popular opinion. Pestilence having thinned the Carthaginian army, Dionysius, in spite of his ill success, found no difficulty in procuring peace (405 B.C.). In the stronghold of Ortygia he defied the machinations of his enemies, until, partly from defeats and partly from dissensions, the opposition died away. After a successful expedition against Naxos, Catana, and Leontini, his efforts were directed against Carthage. (See *CARTHAGE*.) He also carried an expedition against Rhegium and its allied cities in Magna Græcia. In one campaign, in which he was joined by the Lucanians, he devastated the territories of Thurri, Croton, and Locri. After a protracted siege he took Rhegium, 387 B.C., and sold the inhabitants as slaves. He joined the Illyrians in an unsuccessful attempt to plunder the temple of Delphi, and also pillaged the temple of Cære on the Etruscan coast. In the Peloponnesian war he espoused the side of the Spartans. Not content with his military renown, Dionysius aspired also to poetical glory. His poems were hissed at the Olympic games; but having gained a prize for tragic poetry at Athens, he was so elated that he engaged in a debauch which proved fatal (367 B.C.) His life was written by Philistus, but the work has unfortunately perished.

DIONYSIUS, THE YOUNGER, ascended the throne of Syracuse at his father's death, in 367 B.C. He was driven from the kingdom by Dion, and fled to Locri; but during the commotions which followed the assassination of that leader, he managed to make himself master of Syracuse. On the arrival of Timoleon he was compelled to surrender and retire to Corinth (343 B.C.), where he spent the rest of his days in poverty.

DIONYSIUS, of Halicarnassus, was born about the middle of the first century B.C. His father's name was Alexander. From the introduction to his great work we learn that he went to Italy after the termination of the civil wars, and spent twenty-two years in preparing materials for his history, which is entitled *Archæologia*, and embraced the history of Rome from the mythical period to the beginning of the first Punic war. It was divided into twenty books — of which the first nine remain entire, the tenth and eleventh are nearly complete, and the remaining books only exist in fragments. In the first three books of Appian, and in the Camillus of Plutarch, much of Dionysius has undoubtedly been embodied. As an historian he is minute and painstaking; but his attempts to Grecianize the early history of Rome, that the Greeks might in some measure be reconciled to a foreign yoke, render his accuracy more than suspicious. Dionysius was also the author of a treatise on rhetoric, which, with his criticisms on Thucydides, Lysias, Isocrates, Isæus, Dinarchus, Plato, and Demosthenes, have been preserved.

DIONYSIUS, the Areopagite, according to Suidas, was an Athenian by birth, and eminent for his literary

attainments. He studied first at Athens, and afterward at Heliopolis, in Egypt. While in the latter city, he beheld that remarkable eclipse of the sun, as he terms it, which took place at the death of Christ, and exclaimed to his friend Apollonphanes, "Either the Divinity suffers, or sympathizes with some sufferer." He further details that, after Dionysius returned to Athens, he was admitted into the Areopagus, and, having embraced Christianity about 50 A.D., was constituted bishop of Athens by the apostle Paul (Acts xvii, 34). Aristides, an Athenian philosopher, asserts that he suffered martyrdom—a fact generally admitted by historians; but the precise period of his death, whether under Domitian, Trajan, or Adrian, is not certain.

DIONYSIUS, surnamed Periegetes, is the author of a description of the whole earth in hexameter verse, and written in a terse and elegant style. This work enjoyed a high degree of popularity in ancient times, and two translations or paraphrases of it were made by the Romans, one by Rufus Festus Avienus, and the other by the grammarian Priscian.

DIONYSIUS EXIGUUS, one of the most learned men of the sixth century, and especially distinguished as a chronologist, was, according to the statement of his friend Cassiodorus, a Scythian by birth. This may mean only that he was a native of the region bordering on the Black Sea, and does not necessarily imply that he was not of Greek origin. Such origin is indicated by his name and by his thorough familiarity with the Greek language. His surname "Exiguus" is usually translated "the Little," and is supposed to refer to his stature; but it appears to be at least as probable that his known humility led him to assume the designation. He was living at Rome in the first half of the sixth century, and is usually spoken of as abbot of a Roman monastery. Cassiodorus, however, calls him simply "monk," while Bede calls him "abbot." But as it was not unusual to apply the latter term to distinguished monks who were not heads of their houses, it is uncertain whether Dionysius was abbot in fact or only by courtesy. He was in high repute as a learned theologian, was profoundly versed in the Holy Scriptures and in canon law, and was also an accomplished mathematician and astronomer. We owe to him a collection of ecclesiastical canons, comprising the apostolical canons and the decrees of the councils of Nicæa, Constantinople, Chalcedon, and Sardis, and also a collection of the decretals of the Roman pontiffs from Siricius to Anastasius II. He died at Rome, probably about the year 545.

DIONYSUS, in Greek Mythology, is principally the god of the vine; and in the myths concerning him it is clear that the effects of wine and the spread of vine-growing have both been kept in view. No sooner had the god grown up than he started on distant expeditions to teach men to cultivate the vine, and on these occasions his followers were known for their ecstatic ceremonies. It would seem also as if the story of his birth was only a mythical representation of the growth and ripening of the grape. Thebes in Bœotia was originally the local center of his worship in Greece; and he was a son of Semele, a daughter of Cadmus, the king of Thebes, his father being Zeus, who among other divine functions exercised also that of god of the fertilizing spring showers. Before the child was mature, Zeus appeared to Semele at her request in his majesty as god of lightning, by which she was killed, but the infant was saved from the same fate by cool ivy which grew up suddenly around him. Zeus took him up, inclosed him in his own thigh till he came to maturity, and then brought him to the light, so that he was twice born; and it was to celebrate this double birth that the *dithyrambus* was sung. He was now conveyed by Hermes

to be brought up by the nymphs of Nysa, from which place it is probable his name Dio-nysus, or "god of Nysa," is derived; but among the many places of this name claiming to have been the true one it is impossible to decide.

DIOPHANTUS. See ALGEBRA.

DIPHTHERIA, the term applied to an acute infectious disease, which is accompanied by a membranous exudation on a mucous surface, generally on the tonsils and back of the throat or pharynx. Although popularly believed to be a newly discovered disease, there is distinct evidence that diphtheria was known to the ancient physicians as a malady of great virulence. Under the name of the *Malum Egyptiacum*, Aretæus in the second century gives a minute description of a disease which in all its essential characteristics corresponds to diphtheria. In the sixteenth, seventeenth, and eighteenth centuries epidemics of diphtheria appear to have frequently prevailed in many parts of Europe, particularly in Holland, Spain, Italy, France, as well as in England, and were described by physicians belonging to those countries under various titles; but it is probable that other diseases of a similar nature were included in their descriptions, and no accurate account of this affection had been published till M. Bretonneau of Tours, in 1821, laid his celebrated treatise on the subject before the French Academy of Medicine. By him the term *Le Diphthérie* was first given to the disease. By some it is regarded as primarily a blood poison, the local manifestations being secondary and not essential, while others hold, and this is the view now largely maintained by Continental authorities, that diphtheria is at first a local disease, the constitution becoming secondarily affected or poisoned from the local affection. This latter view receives support both from experiments on inoculation of the disease in animals, and from the discovery in the diphtheritic membranes and surrounding tissues, as well as in the blood and other fluids of persons suffering from diphtheria, of the lower forms of vegetable organism (bacteria, micrococci, etc.), which are supposed to be the infecting agents both in the local affection and in its general constitutional effects. Whether this be the correct explanation of the disease, or whether as is held by many, these organisms are to be looked upon merely as accompaniments or complications of the affection, not present in all cases, the following facts appear to be made out respecting diphtheria:—

1. That it is a disease communicable both by infection and by contagion.
2. That grave constitutional disturbance is a constant and prominent symptom of diphtheria.
3. That certain important consequences or, as they are termed, sequelæ are apt to follow diphtheria, particularly some forms of paralysis.

These points, moreover, serve to distinguish this disease from croup, which, although in some cases presenting certain features of resemblance to diphtheria, differs from it in being a merely local inflammatory affection. See CROUP.

DIPLOMACY is the art of conducting the intercourse of nations with each other. The word obviously owes its origin to the source subsequently explained in the article DIPLOMATICS.

Diplomacy, as a science, has arisen out of the development of the European powers, and their rise on the ruins of the Roman empire. As a uniform system, following principles nearly as well established as those of many codes of law, it exists solely among the European powers, partly embracing those nations, such as Turkey and Persia, which have been brought into close association with them. The difficulty, however, of getting those Eastern States to understand and obey the laws of

diplomacy, and submit to its restraints, has ever been an object of anxious comment to Wickefort and the other systematic writers on diplomacy. To submit to be bound in the moment of power by a theoretical system not enforced by the strong hand of any judge, spiritual or temporal, is not consistent with the Oriental mind; and the great civilized powers, in dealing with the Eastern States, as in their intercourse with barbarous tribes, have relied on their own strength, exercised with cruelty or with mildness as the case might be. Alliances and leagues, declarations of war and treaties of peace, have taken place, it is true, among those states, but it would be an historical absurdity to suppose diplomatic relations connecting together China, Burmah, and Japan, as they connect the great European powers.

In the same manner the ancient world had its treaties and leagues, but no systematic diplomatic relations. The pretensions of Rome during the empire, indeed, superseded every kind of international engagement, since she would permit of no relation between the empire and any other state, save that of predominance on her part and subjection on the other. Yet it is evidently from this system of centralization that the diplomatic relations of the European states arose. Freed from the temporal jurisdiction of the empire, and no longer mere dependencies, the European states were still subject in a modified shape to an influence radiating from the old center of imperial authority. The bishop of Rome, in claiming a spiritual authority at least co-extensive with the geographical area of the temporal authority of the departed emperors of Rome, created a sanction, though an imperfect one, for the execution of justice among nations, and acted in some measure as a controlling influence over their diplomatic operations. A memorable instance of the influence of the Pope is found in the relations between John of England and Philip of France. The semi-judicial authority of the court of Rome was cited in support of the English conquest of Ireland, and was appealed to by both parties in the Scottish War of Independence. Little as the Papal authority was respected by even the most Catholic monarchs when they were at the head of large and well-found armies, yet in matters of dubious equilibrium the authority of the Pope had some weight; and as his was a power not limited to any particular state or cluster of states, but even present throughout all the transactions of Christian realms with each other, it had, beyond doubt, an influence gradual and continuous in giving modern diplomacy the amount of specific character which it had obtained at the period of the Reformation. Under the head BALANCE OF POWER, the evils arising from the absence of a supreme power to judge between states, as the courts of law decide questions between individual citizens, will be found discussed. It suffices here to say, that much of the deficiency is filled up by the fortunate train of events which have created, throughout the civilized world, a traditional system of diplomatic practice.

The representatives of great nations, following up the traditions of the science of diplomacy, have often sought by similar acts to do what they considered their duty to their country by taking advantage of every opportunity of aggrandizing it. But modern political philosophy and morality teach us that this is not the manner in which great nations are to be supported or aggrandized, and that for their diplomatic servants there is spread out a nobler field of exertion. It is founded on the consciousness that the real power of states must come from within—from the sound condition of the people, physically, industrially, and morally—from well poised political institutions and good government. If these are absent no diplomatic skill can make up for them; if

they be present it cannot enhance the real power of the state which possesses them. But to the diplomatic representatives of states both powerful and honest a function of a higher character still than mere national aggrandizement belongs, in the capacity, by able, temperate, and honorable negotiation, to keep feeble states from being crushed by their potent neighbors, to preserve peace in the world so long as it can honorably be preserved, and to see generally that international justice is observed among mankind.

DIPLOMATICS, the science derived from the study of ancient diplomas, so called from being written on two leaves, or on double tablets. The Romans used the term more specially for the letters of license to use the public conveyances provided at the different stations, and generally for public grants. Subsequently it attained a more extended signification, and in more modern times has been used as a general term for ancient imperial and ecclesiastical acts and grants, public treaties, deeds of conveyance, letters, wills, and similar instruments, drawn up in forms and marked with peculiarities varying with their dates and countries. With the revival of literature, the importance of such documents in verifying facts and establishing public and private rights led to their being brought together from the historical works and the monastic registers in which they had been copied, or, in rarer instances, from public and ecclesiastical archives where the originals were still preserved. Then arose questions of authenticity, and doubts of the so-called originals, disfavours defended or condemned them; and, in order to establish principles for distinguishing the genuine from the forged, treatises were written on the whole subject of these diplomas.

DIPPEL, JOHANN CONRAD (1673-1734), a German theologian and alchemist, who assumed as an author the name "Christianus Democritus," was born at the castle of Frankenstein, near Darmstadt, his father being a Lutheran clergyman. He studied at Giessen, where he took the degree of master in philosophy in 1693. After a short visit to Wittenberg he went to Strasburg, where he delivered lectures on astrology and chiromancy, and occasionally preached. He gained considerable popularity, but was obliged, after a time, to quit the city, owing to his irregular manner of living, and the suspicion attaching to him of having been concerned in a murder. He had up to this time espoused the cause of the orthodox as against the pietists, and had justified his gay and worldly habits on the ground that he intended to make a practical protest against pietism; but in his two first published works, *Orthodoxia Orthodoxorum* (1697) and *Papismus vapulans Protestantium* (1698), he assailed vehemently the fundamental positions of the Lutheran theology, denying the inspiration of Scripture, the efficacy of the sacraments, and the doctrine of justification by faith. He held that religion consisted not in dogma but exclusively in love and self-sacrifice. To avoid persecution he was compelled to wander from place to place, and he resided successively in various towns of Germany, Holland, Denmark, and Sweden. He took the degree of doctor of medicine at Leyden in 1711. From 1698 he devoted himself to experiments in alchemy, which wasted a considerable fortune, and he was frequently imprisoned for debt. He made several valuable discoveries in chemistry, one being Prussian blue, and another an oil, still known as Dippel's animal oil, which he offered as a panacea, and which has useful medicinal properties of a more limited kind. Provoked by false reports of his death, he published, in 1733, an intimation that he would live until 1808. In spite of this, however, he died at Berleburg on April 25, 1734.

DIPSOMANIA. See **MENTAL DISEASES.**

DIPTERA, an Order of the *Insecta*, containing the "flies," properly so called, with which, also, in spite of not possessing its chief characteristic, the sub-order *Aphaniptera* (fleas), a part of the obsolete *Aptera*, is now incorporated. The *Diptera* proper (with the exception of the apterous *Nycteribiidae*, and a few aberrant species of other families, to which the majority of the characters given will not strictly apply, but which cannot, from their general structure, metamorphoses, habits, or evident natural affinities, be separated from the Order under consideration) have the following characters:—wings two, mesothoracic, membranous, mostly horizontal and transparent, not capable of being folded, with nervures generally few and longitudinally disposed, and having a pair of alulae at the base; metathoracic wings replaced by a pair of halteres or balancers; mouth antilate (whence the Fabrician name *Antiliata* for the Order), with a proboscis formed of the labium, inclosing modifications of other usual parts of the mouth, except of the labial palpi, which are wanting; tarsi five-jointed; prothorax reduced to a very small collar. They are divided into two sections—the **ORTHORHAPHA**, in which the pupa is incomplete (the details of the future perfect insect being visible), and the **CYCLORHAPHA**, in which the pupa is coarctate (of a hard, uniform surface, cylindrical, rounded at the extremities).

DIPTYCH, a double tablet made with a hinge to open and shut. Diptychs were used in the time of the Roman Empire for sending letters—"mainly love letters," says Facellolai, quoting the scholiast to Juvenal *xl*, 36, whose note does not, however, seem to imply as much. The consuls and quaestors used, on assuming office, to send diptychs containing their names and portraits to their friends. The exterior of the leaves was often ornamented with other paintings. The tablets were made, the more ordinary kind of boxwood or maple, the richer sort of cedar, of ivory, of silver, and sometimes even of gold. They were very frequently sent by friends to each other as presents at the beginning of a new year. The early Christians used tablets thus made in the celebration of divine worship.

DIRCE, in Greek legend, the personification of a fountain (and stream) at Thebes, from the water of which Hercules derived part of his strength, and which was usually identified with the fountain of Ares in the legend of Cadmus. Besides, the fountain was the grave of Dirce, at which sacrifices for the dead and other rites were performed. According to the legend, Dirce, the wife of Lycus, King of Thebes, had sorely persecuted Antiope, who at last escaped to Mount Cithæron, where her twin sons Amphion and Zethus were being brought up by a herdsman unconscious of their parentage. Mother and sons met, but had not recognized each other, till Dirce, who had come to the hill for a Dionysic ceremony, proposed that Amphion and Zethus should tie Antiope to the horns of a wild bull to be dragged to death. They were about to do this when the herdsman announced their relationship and they then tied Dirce to the bull instead. She was dragged by it over the hill to the fountain into which she was transformed.

DIRSCHAU, in Polish *Szczawo*, a town of Prussia, in the government of Dantzig and district of Stargard, on the left bank of the Vistula, at a railway junction about twenty miles south-southeast of Dantzig.

DISCUS, a quoit, or circular plate of stone or metal, ten or twelve inches in diameter, which was used by the ancient Greeks and Romans for throwing to a distance as a gymnastic exercise.

DISINFECTANTS are agents or substances employed to prevent the spread of contagious or infectious

disease. Recent investigations all tend to demonstrate that the efficiency of any disinfectant is due to its power of destroying, or rendering inert, specific poisons or disease germs which possess in themselves an independent existence; and which, when introduced into the animal system, under favorable conditions, increase and multiply, thus producing the phenomena of special diseases. Therefore, antiseptic substances generally, which check or stop putrefactive decay in organic compounds, by preventing the growth of those minute organisms, which produce putrefaction, are, on that account, disinfectants. So, also, the deodorizers, which act by oxidizing or otherwise changing the chemical constitution of volatile substances disseminated in the air, or which prevent noxious exhalations from organic substances, are in virtue of these properties effective disinfectants, in certain diseases. A knowledge of the value of disinfectants, and the use of some of the most valuable agents, can be traced to very remote times; and much of the Levitical law of cleansing, as well as the origin of numerous heathen ceremonial practices, are clearly based on a perception of the value of disinfection. The means of disinfection, and the substances employed, are very numerous, as are the classes and conditions of disease and contagion they are designed to meet. Nature, in the oxidizing influence of freely circulating atmospheric air, in the purifying effect of water, and in the powerful deodorizing properties of common earth, has provided the most potent ever-present and acting disinfecting media.

DISLOCATION. This term is applied in surgery to the displacement from each other of the cartilaginous or articular surfaces of the bones entering into the formation of a joint. In a normal joint these surfaces are in contact and held together by ligaments and muscles; in a dislocated joint they are separated more or less completely—in the great majority of cases by external violence; in some instances, however, by powerful muscular exertion. The ease with which a joint is dislocated varies with the form and structure of the joint and with the position in which the joint is when the force is applied. The relative frequency of fracture and dislocation depends on the strength of the bones above and below the joint relatively to the strength of the joint.

DISMAL SWAMP, the name given to two extensive stretches of morass on the eastern seaboard of North America. The larger of the two, distinguished as the Great Dismal, lies in the peninsula between the James River on the north and Albemarle Sound on the south, and thus belongs partly to Virginia and partly to North Carolina. Its length from north to south is about forty miles and its breadth about twenty-five. The greater part of the area is covered with a thick stratum of spongy vegetable soil, without any mixture of earthy particles, which at once supports and is augmented by a luxuriant growth of aquatic plants, brushwood, and timber. The prevailing trees are cypress, juniper, and white cedar, and on the higher ridges, oak and beech. By a curious arrangement, the surface of the swamp is actually higher, in some parts by as much as twelve feet, than that of the surrounding country; so that, except on the western side, where it receives a few small streams, the waters flow outward. The center is occupied by Drummond's Lake, an oval basin about six miles long and three wide, with perpendicular banks and an extreme depth of fifteen feet; the water is clear and abounds with fish. The swamp has long furnished large supplies of timber, much of which has been obtained by excavation from the peaty soil in which it was preserved. The transit is facilitated by means of canals, of which the two most important are the Dismal Swamp Canal, uniting the western branch of Elizabeth

River with the Pasquotank, and the Chesapeake and Albemarle Canal, connecting the eastern branch of Elizabeth River with Currituck Sound. The former is flanked by a stage road, which terminates in the south at Elizabeth City, and in the north at Norfolk. Two lines of railway pass through the outskirts of the Virginian portion of the swamp.

The Little Dismal is of much less importance. It lies in North Carolina, in the peninsula between Albemarle Sound and Pamlico Sound; and in the days when slavery was still legal, it was a noted harbor of runaway negroes.

DISPENSATION is a term used by the canonists to signify an act of jurisdiction by which the rigor of the general law is relaxed in a particular case. Regarded from this point of view a dispensation is considered by the canonists not to be an exception to, but a complement of, the law, and it is granted with discretion in cases where the law would otherwise work injustice.

D'ISRAELI, ISAAC, was born at Enfield, in May, 1766. He belonged to a Jewish family which, having been driven by the Inquisition from Spain, toward the end of the fifteenth century, settled as merchants at Venice, and assumed the name which has become famous.

Isaac D'Israeli is most celebrated as the author of the *Curiosities of Literature*, by far the best and most popular of all the many works of the kind which have appeared in England. It is a miscellany of literary and historical anecdotes, of original critical remarks, and of interesting and curious information of all kinds, animated by genuine literary feeling, taste, and enthusiasm. The first volume was published anonymously in 1791, and it immediately attained the popularity it deserved. Two years later it was followed by a second volume; it was not, however, till the lapse of twenty-four years that the third made its appearance. Three other volumes were subsequently added, and in the later editions the first two volumes were much improved. With the *Curiosities of Literature* may be appropriately classed D'Israeli's *Miscellanies*, or *Literary Recreations* (1796), the *Calamities of Authors* (1812), and the *Quarrels of Authors* (1814). Toward the close of his life D'Israeli formed the project of embodying his wide knowledge of English literature in a continuous history; loss of sight, however, prevented him from publishing more than three volumes, which appeared in 1841, under the title of the *Amenities of Literature*. But of all his literary works the most interesting and delightful is his *Essay on the Literary Character* (1795), which, like most of his writings, abounds in illustrative anecdotes.

DISTILLATION, a generic term for a class of chemical operations which all agree in this, that the substance operated upon is heated in a close vessel ("retort," "still") and thereby wholly or partially converted into vapor, which vapor is then condensed, by the application of cold, in another apparatus (the "condenser") connected with the vessel, and allowed to collect in a third portion of the apparatus called a "receiver." In most cases the substance is a liquid, or assumes the liquid form previous to emitting vapors, and the product obtained (the "distillate") is also in greater proportion liquid. The comparatively few and special cases of distillation, wherein solids are converted into vapors which condense directly from the gaseous into the solid form, are designated "sublimations." Thus we speak of the "distillation" of water or of spirits, while we speak of the "sublimation" of sal-ammoniac. Distillations may be divided into two classes—viz., 1st, those which are *not*, and 2d, those which *are*, accompanied by chemical changes. The word "distillation," in a narrower sense, is generally understood to apply to

the first class only. The second might be called "destructive distillations," if it were not customary to reserve this term for the particular case in which the substance operated on consists of vegetable or animal matter which is being decomposed by the application of heat alone, *i. e.*, without the aid of reagents.

The general object of simple distillation is the separation of substances of different degrees of volatility. The apparatus used varies very much according to the nature of the substance operated on and of the product extracted, and according to the scale on which the operation is carried out. Of the various contrivances used in chemical laboratories, the simplest is a glass retort, the descending neck of which is inserted into, and goes to near the bottom of, a slanting globular flask. The retort serves for the reception of the substance to be distilled, and is heated by means of charcoal or gas fire; the vapors pass into the flask, which is kept cool by a continuous current of cold water running over it, or, in the case of more volatile substances, by being immersed in ice or some freezing mixture. This somewhat primitive arrangement works satisfactorily only when the vapors are easily condensable, and when the product is meant to be collected as a whole. In the majority of cases, however, the distillate has to be "fractionated," *i. e.*, collected in a number of separate, consecutive portions; and it is then desirable that the apparatus should be so constructed as to enable one at any moment to examine the distillate as it is coming over. For this purpose it is necessary to condense the vapors on their way to, and not within, the receiver, so that the latter can, at any time, be removed and replaced by another.

DISTRESS is one of the few cases in which the law still permits an injured person to take his remedy into his own hands. Other instances mentioned in the textbooks are self-defense in the case of a personal assault, the seizure of property wrongfully taken away, the abatement of nuisances, etc. Distress differs from these as being a remedy for what is really a breach of contract, and it is the only case of the kind in which such a remedy is given. It is the right which the landlord has of seizing the personal chattels of his tenant for non-payment of rent.

DISTRIBUTION. The subject specially discussed under this heading is the Distribution of Life, Animal and Vegetable, in Space and Time.

So long as each species of organism was supposed to have had an independent origin, the place it occupied on the earth's surface or the epoch where it first appeared had little significance. It was, indeed, perceived that the organization and constitution of each animal or plant must be adapted to the physical conditions in which it was placed; but this consideration only accounted for a few of the broader features of distribution, while the great body of the facts, their countless anomalies and curious details, remained wholly inexplicable. But the theory of evolution and gradual development of organic forms by descent and variation (some form of which is now universally accepted by men of science) completely changes the aspect of the question and invests the facts of distribution with special importance. The time when a group or a species first appeared, the place of its origin, and the area it now occupies upon the earth, become essential portions of the history of the universe. The course of study initiated and so largely developed by Mr. Darwin has now shown us the marvelous interdependence of every part of nature. Not only is each organism necessarily related to and affected by all things, living and dead, that surround it, but every detail of form and structure, of color, food, and habits, must—~~it is~~ now held—have been developed in harmony with, and to a great extent as a result of, the organic and inorganic

environments. Distribution becomes, therefore, as essential a part of the science of life as anatomy or physiology. It shows us, as it were, the form and structure of the life of the world considered as one vast organism, and it enables us to comprehend, however imperfectly, the processes of development and variation during past ages which have resulted in the actual state of things. It thus affords one of the best tests of the truth of our theories of development; because, the countless facts presented by the distribution of living things in present and past time must be explicable in accordance with any true theory, or at least must never directly contradict it.

From these indications of the scope and bearing of the subject, it will be seen that its full and adequate treatment would require volumes, and would necessarily involve an amount of details only suited to specialists in the various branches of natural history. All that can be attempted here is to give such a general sketch of the whole subject as to place the reader in possession of the main results arrived at, and enable him to comprehend the bearing of the more detailed information he may meet with elsewhere.

Arrangement of the Subject.—The three great heads under which the various matters connected with distribution may be classed are—1st, the geographical distribution of living organisms; 2d, the geographical distribution of extinct organisms; and 3d, the geological succession of the chief forms of life. Owing, however, to the fact that the study of animals and of plants forms very distinct sciences, and that there are special peculiarities in the phenomena presented by each which require to be carefully discriminated, it is found to be necessary to make a primary division of the subject into the distribution of animals and of plants respectively.

DISTRIBUTION OF ANIMALS.

The distribution of living animals in space, naturally forms the first division of our subject, both because the phenomena are simpler and better known, and because it puts before us the main problems and difficulties to the solution of which the other divisions furnish a key. Animals may be roughly divided into two great series, broadly distinguished as regards their mode of life—the terrestrial and the aquatic; and for the purpose of our present study these subdivisions are of primary importance, because that element which limits the range of the one class offers a free passage to the migrations of the other, and *vice versa*. The first series is by far the most important. It is the best known, and includes almost all the higher animals; while the variety and interests of the various land divisions of the globe are far greater than in the case of that portion of its surface covered by water. We shall therefore consider first, and with a greater amount of detail, the distribution of land animals, including among them the fresh-water forms, whose range is limited by the same general conditions.

THE GEOGRAPHICAL DISTRIBUTION OF LAND ANIMALS.

As soon as we begin to examine into the distribution of animals over the land surface of the globe, we meet with two very distinct and sometimes conflicting classes of facts, which may be conveniently grouped as *climatical* and *geographical* distribution. The first is the most obvious, and was long considered to be the most essential, since we find that not only many species, as the polar bear and musk sheep, are strictly limited to cold countries, and others, as the tapir, to warm, but that entire groups, as the sheep on the one hand and the trogons on the other, seem almost equally dependent on temperature. But when we come to compare the productions of the several continents, we find a set of differences in which climate appears to play no part. Thus,

almost the whole of the warblers of Europe and North Asia are absent in similar climates in North America, their place being taken by a totally distinct family, the wood-warblers; the ant-eaters, sloths, and tapirs of tropical America are replaced in tropical Africa by aardvarks, lemurs, and hippopotami; while islands like Borneo and New Guinea, situated in the same ocean not very far apart, and whose climates and physical conditions are, as nearly as possible, identical, are yet as radically different in their chief forms of animal life as are remote countries situated respectively in the cold and tropical zones. It is evident then, that, although climate has a certain amount of influence on the distribution of animal forms, yet geographical conditions are far more important. There is reason to believe that the direct action of climate on animal life is far less effective than its indirect action through the limitation of the variety and quantity of vegetable and insect food; whereas geographical isolation has led to diversity of type by its influence on development during successive ages. It follows that zoölogical regions, or those primary divisions of the earth characterized by distinct assemblages of animals, will, for the most part, coincide with natural geographical divisions. They do not, however, conform to the actual divisions of our geographies, because these are often political or ethnographical, rather than physical—as in the separation of Europe from Asia.

Besides the horizontal distribution dependent on the various causes just indicated, the range of animals is more or less determined by the altitude of the land surface above, or its depth below, the sea-level. As we ascend lofty mountains, the forms of life change in a manner somewhat analogous to the changes observed in passing from a warm to a cold country. This change is, however, far less observable in animals than in plants; and it is so unequal in its action, and can so frequently be traced to mere change of climate and deficiency of food, that it must rank as a phenomenon of secondary importance.

Animals differ greatly in their powers of dispersal or migration; and this is an important element in determining the causes of their actual distribution. Mammalia as a class are more limited in this respect than birds; because the former have no means of passing over seas and oceans, or, with few exceptions, over lofty mountains or arid deserts, all of which when of moderate width can be easily traversed by many birds. Reptiles in their adult state are almost as restricted in their powers of dispersal as mammals, but most of them being oviparous, their eggs may be floated on drift wood over seas and straits, or even, in rare cases, be carried by birds; whereas the young of mammalia are for some time wholly dependent on their parents. Amphibia and fresh-water fishes have yet another advantage, that many of them can endure great cold, and their ova may sometimes be frozen without injury. Thus floating ice becomes an important agent in their dispersal, and enables us to account for the curious fact that their distribution often differs in a remarkable manner from that of the three higher classes of vertebrates. When we come to insects, we find the power of dispersal (as regards land animals) at a maximum; for not only can they travel by almost every mode available to other groups, but their small size, low specific gravity, and (in many cases) great tenacity of life, give them altogether exceptional advantages in this respect. They are easily carried for great distances through the air by gales and storms; and there is evidence to show that many remote islands have been thus stocked, and that many wide-spread groups owe their extensive range to this cause. Others can float uninjured for many days at

sea; while their eggs or larvæ, inclosed in crevices of tree-trunks or concealed under bark, may be carried for hundreds or even thousands of miles by surface currents across extensive seas.

But the actual power of dispersal is by no means the only factor in determining the distribution of a species or a group. It is no use to bring a creature to a new country if it cannot live and maintain itself there. Whether it can do so depends upon many causes. It must be able to adapt itself to a different climate, and generally to different physical conditions; it must be able to live upon whatever food it may find in its new abode; and, most important of all, it must be able to defend itself against new kinds of enemies and to live in successful competition with allied organisms which are already in possession of the soil.

There is much reason to believe that the last-mentioned condition is the most difficult for an intruder to fulfill, and that a large proportion of the immigrants which from any cause arrive in a new country, are unable to maintain themselves in it, not because the country itself is not well adapted to their wants, but solely because it is already occupied by other creatures somewhat better adapted to all the surrounding conditions. Hence arise the phenomena of wide-spread or dominant species, and others which are exceedingly local and often rare, that is consisting of but a small group of individuals. The former are best adapted to the entire environment, and are generally increasing their numbers and area of distribution; the latter are less perfectly adapted, and probably diminishing in numbers and on the road to final extinction. The power of adaptation seems, generally speaking, to be in an inverse ratio to the power of dispersal. The larger mammalia and many birds are capable of enduring a great variety of climates, and even of maintaining themselves in many new countries in competition with the native inhabitants. Thus, horses and cattle from the Old World have run wild and greatly multiplied in both North and South America, and are probably capable of existing in any country where there is a sufficiency of open, uncultivated land. Insects, on the other hand, are often dependent on some one kind of vegetable food, are especially liable to injuries by climate, and unless very numerous would be liable to be at once exterminated by their various enemies.

Barriers which Limit the Distribution of Animals are of many kinds, and affect the several groups in unequal degrees. The nature of the vegetation alone determines the range of a number of animals. Deserts, marshes, open plains, and especially forests, have each their peculiar inhabitants which can hardly stay far beyond their limits. This is particularly the case with the tropical forests, whose perennial foliage and almost perennial succession of flowers and fruits supply the wants of an immense number of peculiar forms of life. These forests are, in fact, the home of all that is most characteristic of the tropics, and their limits form the dividing lines between very distinct faunas. Rivers, when very large, also determine the range of many species, but this is probably because their valleys have been once arms of the sea separating districts with somewhat different faunas. Mountains, when rising to a great height in unbroken ranges, form an impassable barrier to many groups; but their geological age is also an important factor, and they are seldom so ancient and so continuous as to form absolute barriers. Climate, whether determined by latitude or by elevation above the sea, is also a very effective barrier, though probably its action is indirect, and is determined by its influence on vegetation, and by bringing diverse groups into competition. The limits of the tropical and temperate

zones, generally marked out by more or less extensive deserts, form the boundary between regions or sub-regions all round the globe. Oceans are, however, by far the most important barriers; and this is due not only to their great extent and general impassability to land animals, but also to their enormous antiquity, so that for countless ages they have separated the faunas of remote continents from each other.

In accordance with these principles, it is found, that continents separated by the widest and deepest oceans differ most radically in the entire series of their animals; while those which are less completely separated, or which are only divided by climatical differences or by mountain ranges, are less unlike in their chief forms of life. Thus are constituted zoological regions, which represent the most permanent geographical features of the globe, and afford us an indication of their permanence in the isolation and peculiarity of their animal inhabitants.

Zoological Regions.—Although there is some difference of opinion as to the number and limits of the primary divisions of the earth termed regions, the following are now generally admitted to be the most satisfactory. They are nearly identical with those first proposed by Mr. P. L. Sclater in 1857.

1. The Palearctic Region, which includes all Europe to the Azores and Iceland, all temperate Asia from the high Himalayas and west of the Indus, with Japan, and China from Ningpo and to the north of the watershed of the Yang-tse-kiang; also North Africa and Arabia, to about the line of the Tropic of Cancer. This may be popularly called the European region, Europe being the richest and most varied portion of it and containing representatives of all the more important types; but it must not be forgotten that the region includes a much larger area in Asia, and that there are many peculiar North Asiatic animals.

2. The Ethiopian Region, which includes all Africa south of the Tropic of Cancer, as well as the southern part of Arabia, with Madagascar and the adjacent islands. It may be popularly termed the African Region.

3. The Oriental Region, which is comparatively small, including India and Ceylon, the Indo-Chinese countries and Southern China, and the Malay Archipelago as far as the Philippines, Borneo, and Java. It may be popularly called the South Asiatic or Indian Region.

4. The Australian Region, which is composed of the remainder of the Malay Archipelago, Australia, New Zealand, and all the tropical islands of the Pacific, as far east as the Marquesas and the Low Archipelago.

5. The Neotropical Region, which comprises the whole of South America and the adjacent islands, the West Indies or Antilles, and the tropical parts of Central America and Mexico. It may be well called the South American Region.

6. The Nearctic Region, which consists of all temperate and arctic North America, with Greenland, and is thus well described as the North American Region.

These six regions, although all of primary importance from their extent, and well marked by their total assemblage of animal forms, vary greatly in their zoological richness, their degree of isolation, and their relationship to each other. The Australian region is the most peculiar and the most isolated, but it is comparatively small, and poor in the higher animals. The Neotropical region comes next in peculiarity and isolation, but it is extensive and excessively rich in all forms of life. The Ethiopian and Oriental regions are also very rich, but they have much in common. The

Palearctic and Nearctic regions, being wholly temperate, are less rich, and they too have many resemblances to each other; but while the Nearctic region has many groups in common with the Neotropical, the Palearctic is closely connected with the Oriental and Ethiopian regions. The cause of these various resemblances and differences depends on the past history of the earth, and will be better understood when we have sketched the zoological features of each region and the changes they have undergone in the latest geological periods.

I. *The Palearctic Region.*—This extensive region, though varied in physical aspect, and often covered with luxuriant vegetation, is poor in animal life when compared with the great tropical regions of the Old and New Worlds. This is no doubt due mainly to climate, but also in part to so much of its surface being densely populated and highly cultivated. It contains, however, a number of characteristic, and not a few altogether peculiar, animal forms. Beginning with the Mammalia, we have first the sheep and goats with such allied forms as the chamois and saiga-antelope, which are especially characteristic; deer are abundant and varied; the smaller cats, the wolves, the foxes, and the bears abound, with a variety of smaller groups, as weasels, badgers, and some otters. Seals are plentiful on the northern coast, and even in the Black and Caspian Seas; wild horses and asses abound in Asia, as they once did in Europe; there are many peculiar forms of mice, voles, and hamsters; while dormice, squirrels, marmots, hares, and pikas, are well-marked features of the region. The insectivorous family of the moles is almost peculiar, as are the curious mole-rats (*Spalax*).

In birds, the Palearctic region is preëminently rich in thrushes, warblers, titmice, jays and magpies, sparrows, and buntings. It also abounds in grouse, and in its eastern half in magnificent pheasants. Water-birds are plentiful, and its northern districts produce many fine ducks and divers.

Of fresh-water fishes about twenty genera are wholly confined to the region, of which the perches have three genera; the salmon and trout, three genera; the carp, thirteen genera; with a peculiar genus and family (*Comphorinus*) found in Lake Baikal, and another (*Tellia*) belonging to the *Cyprinodontidae*, in the Atlas Mountains.

Insects are so extensive a class that the barest enumeration of their most remarkable forms would be out of place in such a sketch as this.

II. *The Ethiopian Region.*—This region is much less extensive than the last, but being almost wholly tropical it presents a richer and more varied assemblage of animals. Its southern extremity, although really extra-tropical, is yet so warm and so little subject to extremes of temperature that the growth of vegetation and the corresponding development of animal life are scarcely diminished, and the same may be said of the elevated interior of the continent. As Madagascar is quite isolated, and its productions very peculiar, it will be best first to sketch the main features of African zoölogy, which are tolerably well marked and homogeneous.

The African Continent is preëminently the country of large Mammalia. It possesses an abundance of elephants, rhinoceri of several species, giraffes (now peculiar to it), gorillas and baboons—the largest of the ape tribe, a host of large and remarkable antelopes, the huge hippopotamus, several species of zebras, wild buffaloes, several remarkable forms of swine, and an abundance of lions, leopards, and hyænas—forming together an assemblage of large and highly organized animals such as occur nowhere else upon the globe. There also many smaller, but very remarkable forms. There are

seven peculiar genera of apes, three of lemurs, five of *Insectivora*, twelve of *Viverridae*, the remarkable *Proteles* forming a distinct family allied to hyænas and weasels, two of *Canidae*, two of *Mustelidae*, two of *Suidæ*, one of *Traugulidae*, twelve of *Bovidae* (antelopes), eighteen of various families of Rodents, and the curious aardvark (*Orycteropus*), forming a distinct family of *Edentata*.

In birds Africa is not so peculiar, yet it has many remarkable groups. Such are the plantain-eaters, the colies, the secretary-birds, the ground horn-bills, and the guinea-fowl—all of which are peculiar. It abounds also in peculiar fly-catchers, shrikes, sun-birds, weaver-birds, starlings, larks, barbets, grouse, and hawks—more than half the genera of land-birds being peculiar, and, if we include those of Madagascar, nearly two-thirds.

Reptiles abound, there being three peculiar families of snakes and one of lizards; and there is one peculiar family of toads. There are also three peculiar families of fresh-water fishes.

It is impossible to give any idea of the special features presented by the insects and land-shells without going into details which would be out of place in such a sketch as we are here giving. In both these groups Africa is fully as rich as the other tropical regions, and exhibits perhaps more peculiar features than among the higher animals.

We must, however, just mention the remarkable absence from the Ethiopian region of certain groups of Mammalia which abound in the countries to the north and east of it, as this phenomenon has an important bearing on the probable origin of the fauna. The most striking of these deficiencies are the two families of the deer and the bears, which abound over the whole northern hemisphere, in tropical Asia and the Malay islands, and even in North Africa, but are both entirely unknown over the whole Ethiopian region, as are, among smaller groups, the goats and sheep, the true oxen, and the mole family. Among birds such wide-spread groups as the wrens (*Troglodytidae*), dippers (*Cinclidæ*), and the true pheasants are also entirely wanting.

The exceeding speciality of the forms of life which are still found in the Ethiopian region is well shown by the fact that there are about twenty-four family groups of vertebrate animals which are entirely confined to it, while two-thirds of its genera of Mammalia, and three-fifths of the genera of birds, are also peculiar.

III. *The Oriental Region.*—The Oriental region is wholly tropical, but is of smaller extent than the Ethiopian. It is very largely covered with forest-vegetation, and is much broken up into islands and promontories, conditions so favorable to animal life as fully to compensate for its small area.

In the larger Mammalia there are many resemblances between the Oriental and Ethiopian regions. Both have anthropoid apes, elephants, rhinoceri, large felines, buffaloes, and an abundance of civets. But the Oriental region abounds in deer and bears, it has many remarkable *Insectivora*, the Malay tapir, and many wild cattle. It has also a great number of characteristic forms of life.

The birds of this region are exceedingly abundant, varied, and remarkable. Tits, flycatchers, crows, sun-birds, starlings, kingfishers, pigeons, and pheasants are very abundant, and are represented by many remarkable forms. More than 340 genera of land-birds inhabit the region, of which number 165 are peculiar to it. Reptiles are very abundant. Three small families of snakes are peculiar, and there are a large number of peculiar genera both of snakes and lizards.

Insects are exceedingly varied and beautiful, especially in the Himalayas and in the Malay islands.

IV. *The Australian Region.*—On entering this region we meet with such a radical change in all the higher forms of life, that the zoologist seems to have got into a new world. Even the Austro-Malay islands, though differing in no way in climate or luxuriance of vegetation from the Indo-Malay islands to the west of them, exhibit this change in an almost equally marked degree. With the exception of Celebes, which is a debatable land hardly belonging to either region, the other islands only possess a few deer and pigs to represent the host of varied Mammalia—from the elephant and tapir to the squirrel and monkey—which characterize every part of the Oriental region to its extreme southeastern limits in Java and Borneo. In place of these we have Marsupials only, in great variety in the extensive country of Australia and less abundantly in the islands; and besides these, only those flying mammals—the bats, which can traverse the ocean, and the smallest form of rodents, the mice—which may be occasionally carried by floating trees or other accidental means across narrow arms of the sea. There are five distinct families and thirty-three genera of Australian Marsupials, as well as two families and genera of the still more lowly-organized Monotremata which comprise the anomalous *Ornithorhynchus* and *Echidna*.

Birds, as might be expected, are not so excessively peculiar, a large number of almost cosmopolitan families extending into Australia; yet there are no less than sixteen families altogether characteristic of the region, among which are such remarkable forms as the Paradise-birds, the honey-suckers, the lyre-birds, the cockatoos, the lories, the mound-builders, and the cassowaries. Among the important groups which are entirely wanting in Australia are the barbets, the wood-peckers (otherwise cosmopolitan), the trogons, and the pheasants. The reptiles, as in most other cases, offer less marked peculiarities than the birds; but a large proportion of the genera are peculiar, and there are even three peculiar families of lizards, as well as the singular *Hatteria* of New Zealand, which constitutes not only a separate family but a new order of reptiles. The Amphibia and fresh-water fishes present a corresponding amount of peculiarity; and the recent discovery of genus *Ceratodus* (the mud-fish) is very interesting, since its nearest allies appear to have lived early in the Secondary period, while other members of the same group are found isolated in the rivers of tropical Africa and America.

Insects are very abundant in Australia and the Austro-Malay islands; but owing to the various means by which these small creatures are conveyed across the seas, and the identity of physical conditions in the Oriental and Australian portions of the archipelago, the true Australian fauna is chiefly developed in Australia itself, where there are a considerable number of peculiar genera in all orders of insects.

V. *The Neotropical Region.*—This is in some respects the richest zoological region on the globe, yet it has certain resemblances to the Australian region, which is the poorest, and which it follows in natural order. This is owing to both being inhabited mainly by low types of Mammalia and birds, some of which have been preserved from early geological times, the Marsupials being a good example. But there has also been some intermigration between south temperate America and Australia, by means of intermediate islands and floating ice, and this has led to a community of forms in a few groups to which such a mode of transmission was possible.

The Mammalia are as abundant and varied as in any other countries except Africa and tropical Asia; but the region is characterized by poverty in the more highly organized forms, with a corresponding abundance of

lower types. Monkeys are abundant, but all belong to two peculiar families—*Cebidae* and *Hapalidae*—different in structure and of a somewhat lower organization than those of the Old World. About half of them have powerfully prehensile tails, a character unknown among the monkeys of the Eastern Hemisphere. Bats are very numerous, and one extensive family—the vampire-bats—is peculiar. Insectivora are unknown in South America, but one peculiar genus occurs in the larger Ant 'les, and a few shrews in Central America. The Carnivora are but moderately numerous, the *Civet* family being entirely wanting, as are the bears, with the exception of a solitary species in Chili. There is, however, one peculiar family—the *Procyonidae*—which extends over North America as well. A marked feature is the excessive scarcity of the great family of the Ungulata, or hoofed animals. There are no wild cattle, sheep, goats, antelopes, horses, or rhinoceri; and only a very few species of tapirs, peccaries, llamas, and deer in their place. Coming to the small and feeble Rodents, however, we find a great abundance and variety of forms, including the largest on the globe. Five families are peculiar, or nearly so—the chinchillas and the cavies being the most important, while all the genera, except *Sciurus* and *Lepus*, are peculiar to the American continent. We now come to the Edentata, the most imperfectly organized and the most characteristic of the Neotropical mammals. There are twelve genera belonging to the three families of the sloths, the armadillos, and the ant-eaters. Lastly, we have the Marsupial opossums, which range far over temperate North America, but are most abundant in the tropical regions of South America.

In birds the Neotropical region is wonderfully rich. It possesses far more distinct genera and species than any other region, and it has twenty-four entire families peculiar to it, while the region which comes next in specialty and isolation as regards this order—the Australian—has only sixteen. Most of these peculiar families are, however, of a somewhat low grade of organization, and it is these which abound most in genera and species and give a special feature to the ornithology of the country. These peculiarly American families (for some of them range into North America) are the tyrant fly-catchers, the manakins, the chatters, the plant-cutters, the tree-creepers, the ant-thrushes, and the wren-thrushes. All these have a deficiency in the singing-muscles of the throat, and they comprise more than 200 genera. Then, among the *Picarie*, which are a low though wide-spread order, we have the toucans, the puff-birds, the jacamars, the motmots, and the humming-birds, comprising 140 genera. The only peculiar families of high organization are the sugar-birds, the greenlets, the hang-nests, and the tanagers, comprising in all eighty-two genera. The most highly organized groups of birds, and those which are most abundant in the Eastern Hemisphere, such as crows, starlings, thrushes, warblers, and flycatchers, are either scarce or entirely wanting. Finches are numerous, as are parrots. Among game-birds the higher types, as the grouse, are scarce; while the more lowly-organized curassows and tinamous are much more abundant and more widely distributed over the whole region. Among the wading groups, which are decidedly of low organization, there are six peculiar and very isolated families, the most remarkable being the *Cariamidae*, the *Psophiidae*, the *Eurypygidæ* (sun-bitterns), and the *Palamedeidae* (horned-screamers). The very low struthious type is represented by the American ostriches.

Reptiles are also very abundant in the Neotropical region, and there are many peculiar groups. Snakes are represented by peculiar genera only, the families being

almost always widely and often universally distributed in warm regions; lizards are more restricted in their range, and no less than five families are peculiar to the region, while nine are found only in the American Continent. All are of very small extent except two, the *Teiidae* and *Iguanidae*, which are very numerous, and comprise the most characteristic American lizards. There are also four peculiar families of tailless Batrachians, the most popularly known being the *Pipidae*, which contains the remarkable Surinam toad.

Fresh-water fishes are probably more abundant and varied than in any other region. Three entire families and several sub-family groups are peculiar, and the enormous forest-bordered rivers and extensive tracts of annually flooded woodland have led to the development of special groups of fruit-eating fishes, which, as articles of food, are not only unsurpassed but altogether unequaled in any other part of the globe. Fresh-water rays and electric eels are also peculiar to Neotropical rivers. It is reported that Professor Agassiz obtained more than a thousand species of fishes in the Amazon alone; but, although this may be exaggeration, there is no doubt that a still greater number exists in that wonderful river and its tributaries.

The insects of tropical America are so inexhaustible in their variety, and so wonderful in their beauty, that it is hopeless to attempt to give an adequate idea of them. The butterflies are far more abundant and more gorgeous than in any other region, and their variety may be imagined from the fact that the peculiar genera are nearly equal in number to those of the rest of the world. The beetles, though very abundant, are not so clearly preponderant over those of all other regions. The stag-beetles and rose-chafers are somewhat poorly developed; but all the other large families are very abundant, and comprise many forms of extreme beauty and interest.

VI. *The Nearctic Region.*—This comprises all temperate North America; and its peculiar fauna is best represented in the United States, and especially in that portion extending from the Mississippi Valley to the Atlantic. It is allied both to the Neotropical and the Palearctic regions, but it also possesses a considerable number of peculiar or characteristic forms. Among Mammalia it possesses three peculiar genera of moles, two of weasels, two of hollow-horned ruminants—the prong-buck and the mountain goat or antelope—and a number of Rodents, among which the most peculiar are the pouched rats. Of those groups which are more peculiarly Neotropical it has skunks, raccoons, and opossums. The number of Palearctic groups is greater, the more important being lynxes, wolves, martens, bears, elks, bison, sheep, flying-squirrels, and marmots.

Of birds there are between forty and fifty genera which are peculiar or highly characteristic. Most of them belong to the passerine families, the wood-warblers and the finches being especially rich in peculiar groups; and there are also a few among the thrushes, wrens, crows, hang-nests, woodpeckers, grouse, and some other families. Among the larger birds the turkeys, the ruffed grouse, and the crested partridges are the most remarkable.

Reptiles seem to be more numerous than in the Palearctic region. About a dozen genera of snakes are peculiar or characteristic, the most remarkable being the well-known rattle-snakes. Among lizards the so-called "glass-snake" is a peculiar form analogous to our slow-worm; while the horned-lizards and many other genera of Iguanidae are peculiar. Fresh-water fishes are exceedingly numerous and highly peculiar, there being no less than five (or, according to recent authors, eight) peculiar families, and a large number of peculiar

genera. The perches and their allies, the carps, the suckers, and the cat-fish (*Siluridae*) are the most abundant groups.

In insects the Nearctic region is not remarkably rich or very peculiar. Its butterflies, though tolerably abundant, belong for the most part to well-known European groups with a small infusion of Neotropical forms in the Southern States. The same may be said of its Coleoptera. Land-shells are tolerably plentiful but not strikingly peculiar; the Alleghany district being the most productive, and possessing a large number of peculiar species. In fresh-water shells North America surpasses every other part of the globe, considerably over a thousand species, most of them *Unionidae* or fresh-water mussels, having been described.

DISTRIBUTION OF MARINE ANIMALS.

The zoological regions which serve to represent the main facts of the distribution of land animals are evidently inapplicable to those inhabiting the ocean, except in a few cases where the group is confined to shallow waters or to estuaries. It is true that, as the great continents are separated by the oceans, so the oceans are to some extent separated by the continents, but owing to the superior area of water the separation is far less complete and effective. In the southern hemisphere the Pacific, Atlantic, and Indian Oceans freely communicate, and for truly oceanic animals there would seem to be hardly any obstacle against universal distribution. Yet even in this case physical conditions, especially depth and temperature, are found to be effective barriers. The fact that the deep waters even of the tropical seas are cold, renders it indeed possible for some temperate or Arctic forms to cross the equator if they can travel at great depths; but for surface-dwellers the broad expanse of warm water between the tropics, with its host of specially adapted organisms, forms an absolute barrier. In like manner the inhabitants of the tropical shallow waters are limited, and it is only by temporary subsidences of land or elevations of the sea-bottom to near the surface, allowing of a passage east or west, that they can migrate into remote areas. We have good reason to believe, however, that subsidences have often occurred between North and South America, allowing of a free interchange of aquatic animals between the Atlantic and Pacific Oceans; while in Eocene times a strait is supposed to have connected the Atlantic and Indian Oceans, and more recently the Red Sea and Mediterranean have almost certainly been united. We cannot, therefore, expect to find any such strongly-marked zoological regions among aquatic as among terrestrial animals, and the facts at our command entirely confirm this view. For many groups the warm and the cold, or the northern, tropical, and southern seas, are the only well-marked divisions; while for others the North Atlantic, the North Pacific, and the Indian Ocean form additional regions of a more or less defined character. For special studies of the more highly-organized marine groups—as the Mollusca or Crustacea—a host of provinces and sub-provinces have been formed, each important sea or coast presenting some peculiar features, but as these divisions mostly depend on specific rather than generic distribution, they need hardly be noticed here.

Fishes.—The distribution of marine fishes appears to agree generally with that of the Mollusca and Crustacea, their greater powers of locomotion, leading to a wider dispersal, being to some extent compensated by the more recent origin of most of the species, genera, and families. There are about eighty families of marine fishes, and no less than fifty of these are almost universally distributed. Several other families range over all

tropical seas. About five families are found only in the arctic and temperate seas of both hemispheres, while two are found in the north temperate seas only. The best marked region is undoubtedly (as in the Mollusca and Crustacea) that which extends from the Red Sea and east coast of Africa to the Sandwich Islands and Australia. About ten families are confined to this region (which may be termed the Oriental or Indo-Pacific marine region); many genera of other families equally characterize it, while there are even a number of species which range over the greater part of its vast area. On the other hand, no family of importance seems to be confined to the Atlantic, or to the coasts of Eastern or Western America, the differences of these provinces, as of the European and American shores of the Atlantic, being confined to generic and still more largely to specific forms. Many species of fish have enormous ranges, extending from the North Atlantic to Australia, from the Red Sea to the Sandwich Islands, and from New Zealand to South America. Some species range over almost the whole Atlantic Ocean, and a considerable proportion of those inhabiting the Atlantic and Pacific coasts of Central America have been found by Doctor Günther to be identical.

It has long been known that a considerable number of fishes inhabit very deep water, never coming to the surface when alive; but the researches of the *Challenger* expedition have added greatly to our knowledge of these curious forms. A large number of genera and species, many of them new, and belonging to ten distinct families, have been obtained in the nets and trawls from a depth of 200 to 2,400 fathoms in all the great oceans. These often come up greatly inflated by the expansion of the internal gases; some were transparent, several were blind, and some had curious phosphorescent organs on the head. These deep-sea forms generally have a wide range.

Marine Turtles.—These reptiles, forming the family *Cheloniidae*, are too few in number and too widely distributed to afford any indications as to oceanic regions.

Cetacea.—The whales and dolphins form the only group of truly oceanic Mammalia. They are very widely distributed, but their classification is too unsettled, and their history too imperfectly known, to throw much light on the general question of oceanic distribution. The largest whales inhabit the cold northern and southern seas.

DISTRIBUTION OF VEGETABLE LIFE.

The literature in which the immense multitude of distinct kinds of plants which are dispersed over the earth's surface and form its vegetation, has so far been described, has necessarily been adapted to the divisions of political geography. The causes which have brought about the formation of such divisions have rarely, however, had anything in common with those which have determined the characteristic features, whether superficial or profound, of the floras of different countries. The great mass of catalogues and descriptive enumerations of the plants of such countries, the boundaries of which are for the most part quite artificial, are therefore ill adapted for bringing out any general conclusions as to the mode in which plants are distributed. It is only by making some kind of analysis of the often heterogeneous contents of such catalogues, and piecing together the results obtained from different sources, that any clue can be obtained to the approximate lines of demarcation of floras which are really naturally limited and characterized. The process is, however, enormously laborious, and, even apart from that, must for a long time to come be exceedingly imperfect in its application, owing to the immense tracts of land—and those with the most varied

and copious vegetation—of the natural products of which our knowledge is still most defective.

Numerous attempts have, however, been made, notwithstanding the difficulty of the task, to map out the earth's surface into "regions of vegetation." The real significance of these regions will, of course, entirely depend upon the principles which have been relied upon in forming them. And in this respect the progress of geographical botany has been exactly similar to that of classification. The characteristic distinctions which were first seized upon in either case proved on closer scrutiny to be superficial, and to bring about merely artificial and arbitrary assemblages. The doctrine of evolution has in fact effected the same revolution in both; it has shown in the one that community of descent is the real meaning of a natural classification; it has shown in the other that community of origin is the real key to geographical distribution.

Most of the writers on geographical botany have been content to set aside all considerations of origin and history in attempting to define the limits of botanical regions. They have not attempted to see in the peculiar features which such regions may possess anything more than adaptations to physical conditions working on plants created in great measure where they are found. Although, therefore, the literature of geographical botany has been useful in enabling the reader to realize the local features—the coloring, if one may so express it—of particular countries, the facts have hitherto been presented in a form void of any true significance. And these remarks apply to the system of Schouw (1833), which has been much employed, partially to that of De Candolle, and conspicuously to that more recently published by Grisebach. It is to the writings of Darwin, Hooker, Asa Gray, and Bentham that we must look for a real insight into the origin and dispersion of floras, and for the real causes of the existing distribution of plant life.

The first attempt to review the whole subject of plant-distribution from the modern point of view afforded by evolution, is due to Bentham, who made it the subject of a presidential address delivered to the Linnean Society in 1869. Bentham's conclusions are based upon the experience of a long life devoted to a systematic botany, and will probably always hold a fundamental position in the study of the subject; at any rate for some time to come, until the distribution of a large number of subordinate groups has been carefully worked out, the main points established by him are not likely to be materially modified.

The general *facies* of vegetation is obviously largely affected by purely physical causes. In the polar regions, arboreal, and even shrubby plants, become incapable of existence, and only small perennials which are safely covered up by snow during the long winter are able in the brief summer to expand their flowers and ripen their seeds. Putting aside for the moment the severances effected by large bodies of water and mountain chains, it is easy to see that the vegetation of the earth must have always been separable into three great latitudinal zones, two belonging to the north and south hemispheres respectively, and one dividing them lying between the tropics. The constituents of the vegetation of these zones must always have had a certain homogeneity; very considerable divergences, however, have grown up within the zones themselves, owing to circumstances of geographical isolation. Even without these, distance alone, independently of isolation, would in time be sufficient to effect it. It is also obvious that the precise northern and southern limitations of such hypothetical zones must have varied with secular changes in the earth's climate, and when these changes

have taken place over a broken configuration of land and sea, the intermixture of diverse floras must necessarily have become very complicated.

Underlying, however, the tangled fabric of the earth's existing floral covering, we may agree with Bentham in recognizing the existence of three tolerably ancient floras—the Northern, the Tropical, and the Southern.

I. The Northern is characterized by its needle-leaved Coniferae, its catkin-bearing *Amentacea* and other forest trees deciduous in winter, and its vast assemblage of herbarious types, *Ranunculaceae*, *Cruciferae*, etc. These spread over Europe, Northern and Central Asia, and a great part of North America.

II. The Southern is broken up into numerous divergent floras. Their original connection is now traceable only in the common possession by two or more of them of large characteristic groups, such as *Rubiaceae*, *Proteaceae*, *Diosmeae*, etc., the subordinate divisions of which have been locally specialized. To this belong the floras of extra-tropical South America, South Africa, and Australia with New Zealand, to which must probably be added an area borrowed from the northern hemisphere in Mexico and California.

III. The Tropical is characterized by the predominance of mostly evergreen arborescent *Polypetalae* (*Anonaceae*, *Meliaceae*, *Leguminosae*, etc.), and gigantic Monocotyledons, of which Palms, *Scitamineae*, and *Bambuseae* among grasses are especially striking.

I. THE NORTHERN FLORA.—This has been long divided into that of Old and New World by the severance of North America from Northern Asia, and by the barrier to an interchange of vegetation in the upheaval of the Rocky Mountain range. Nevertheless its marked continuity (with only a gradual east and west change in the arctic regions, but an increased divergency southward) requires it to be treated as a whole. The Old and New World divisions of this flora, which, no doubt, began to diverge from the mere influence of distance, have now had that divergence immensely increased by isolation. According to Lesquereux, the essential types of the present arborescent flora of North America are indicated in the Cretaceous rocks of that country, and become more distinct and numerous in the Tertiary; and he believes that the origin of the existing American flora is American. The analogy between the Miocene flora of Central Europe and the present North American flora is unquestioned, and is greater than between the same fossil flora and that now existing in Europe. Lesquereux's conclusion is that American element in the vegetation of Miocene Europe was derivative, and this is one of many illustrations of the curious observation of Asa Gray that plants have in general a greater tendency to migrate from east to west than from west to east. This Miocene flora was, however, gradually driven back again, and it is only as we travel from Europe to the East that we gradually find its traces getting stronger and stronger.

DITHMARSCHEN, or DITMARSH, in the oldest form of the name *Thiathmarsgaha*, Dietmar's Gau, a territory between the Eider and the Elbe, forming the western part of the old duchy of Holstein, and now included in the Prussian province of Schleswig-Holstein. It was originally colonized mainly from Friesland and Saxony—the Frisian kindred of the Vogdemans settling on the coast and giving rise to the two marks of Nordstrand and Süderstrand, and the Saxon kindred of the Woldersmen settling inland and forming the two marks of Norderhamme and Süderhamme. The district was subjugated and Christianized by Charlemagne in 804, and ranked as a separate *Gau*, included perhaps in the countship of Strade.

DITTON, HUMPHRY, an eminent mathematician, was born at Salisbury, May 29, 1675.

DIU, an island and small seaport on the south coast of the Kāthiawār peninsula, in the Province of Guzerat, in India. The Portuguese obtained possession of the island in 1515, and have held it ever since.

DIURETICS are remedies which, under certain conditions, produce an increased flow of urine. Their mode of action is various. Some, as turpentine and cantharides, are absorbed into the blood, are carried to the secretory organs (the kidneys), and stimulate them directly, causing an increased flow of blood to them; others act as stimulants through the nervous system. A second class act in congested conditions of the kidneys by diminishing the congestion; this is supposed to be one of the modes of action of digitalis. Another class, such as the saline diuretics, are effectual by virtue of their osmotic action. A fourth class are diuretic by increasing the blood pressure within the vessels in general, and the Malpighian tufts in particular—some, as digitalis, by increasing the strength of the heart's contractions, and others, as water, by increasing the amount of fluid circulating in the vessels. Some remedies, as mercury, although not diuretic themselves, when prescribed along with those which have this action, increase their effect.

DIVAN, THE, or privy council of the Sublime Porte, is presided over by the sadri-azam, grand vizier (*porter*), or minister of the interior, who communicates its deliberations to the sultan. It also contains the mufti, sheikh-ul-islam, chief of the ulema, also called principal of the court of cassation, and minister of justice and ecclesiastical affairs, whose *fetwa* is nominally required for the firmans of the government. Among other members we may mention the seraskier, or war minister; the capudan pasha, or minister of marine; the foreign minister (called, until the reforms of Mahmoud, *reis effendi*); the grand terfardar, or finance minister; the mustechar, or assistant vizier, who comes in place of the ancient kiaya bey, abolished by Mahmoud; the tchiaous bashi, or intendant general of police; and the intendant of vakufs, or church lands. The divan meets twice a week; on emergencies an Ajak Divani, including the provincial pashas, the beys, ajams, and chief military officers, is summoned. On its advice in cases of popular tumult the sultan used to show himself at a window and promise reforms. But the word divan was applied by Turks, Persians, and Arabs to many kinds of assembly. Thus the Abbasside caliphs had a "Divan of Oppression," which inquired into charges of tyranny against officers of state. A woman is said to have been president of this divan in the reign of Moctader, at the beginning of the tenth century. The Diwan-i-humayun was the imperial court of Persia; while in modern Turkey diwan-khane is any large room or hall in which people meet. Hence the word has been applied to the vizier, or head of the assembly; to the bags in which the judicial records of the kazi were kept; and to the court-hand in which the firmans were written.

DIVER (*Colymbidae*), a family of natatorial birds closely allied to the grebes, but differing from them in having the front toes entirely webbed, and in their much greater size. Their legs are placed at the further extremity of the body, and both wings and tail are short. This family contains only four species, three of which are common to the northern regions of both hemispheres, while the fourth is exclusively North American. The largest species is the Great Northern Diver (*Colymbus glacialis*). It measures about thirty inches in length; and in its full adult plumage, the male especially is an exceedingly handsome bird. The greater part of its upper surface is black, beautifully marked with numerous rows of white spots; the head

and throat are also black, the latter relieved by two collars of white, spotted with black, while the greater part of the under surface is white. The Great Northern Diver lives chiefly on the ocean, feeding on the smaller fish, as herrings and sprats, in pursuit of which it dives beneath the surface with a facility to which it owes its common name.

DIVIDIVI, the commercial name for the astringent pods of *Casalpinia coriaria*, a leguminous shrub of the sub-order *Casalpinia*, which grows in low, marshy tracks in the West Indies and the north of South America.

DIVINATION. This term is used to mean the obtaining knowledge of secret or future things by revelation from oracles or omens. The derivation of the word points to *divine* influence communicated through the soothsayer, much as the equivalent Greek term *mantike* refers to the utterances of the spiritually inspired or possessed seer, *mantis*. It is well seen from Cicero's treatise *De Divinatione* that in classic times theology not only included in its system all revelation by oracles, which clearly belongs to it, but also claimed possession of a variety of diviner's arts, such as augury and astrology, on the ground that their signs were sent by the gods.

DIVING. The art of diving to considerable depths under water to bring up pearls, corals, and sponges has been practiced in the Indian seas from very early times, and if we may believe the accounts that have come down to us, the feats of early divers are truly remarkable—some of them, it is said, having been able to prolong their submarine descents for periods varying from two to three minutes. It is obvious, however, that not having the aid of any artificial appliances for supplying air, the powers of these bold adventurers, both as regards the depth to which they could descend and the length of time they could remain submerged, were comparatively limited.

At an early period, therefore, the attention of philosophers and mechanics was turned to the discovery of a contrivance for aiding the diver in prosecuting his daring but useful calling, which was rendered all the more important from its being no longer confined to the acquisition of Eastern luxuries, but to the raising of treasure from sunken vessels. It is not considered expedient to occupy space by further reference to the feats of the early divers, but rather to pass at once to the history and construction of the diving apparatus of modern times, as illustrated by the diving bell and the diving dress at present in use. And here it may be stated that in addition to the sponge and coral trade of foreign lands, which has been greatly advanced by the use of modern appliances, there are the works of the naval engineer, and more particularly of the civil engineer, in which diving apparatus is so extensively employed and so essentially necessary as to place the art of diving on a wider basis, and to give it an importance only fully developed within the present century.

The most useful of ancient contrivances is the diving-bell, which, introduced at an early period and gradually improved, is now the well-known apparatus used by engineers in the present day, and it may be interesting to trace the successive improvements that have brought it to its present state of perfection and usefulness in conducting submarine works.

The cost of a diving dress, with all its appliances, is about £140.

The sponge, pearl, and coral fisheries, originally carried on only by naked divers, as already noticed, are now conducted to a great extent by the help of artificial aids, and, according to Mr. Siebe, upward of 300 sets of diving dresses are employed in the Mediterranean sponge

fisheries alone, and they are being introduced in the Bahamas, Bermudas, Ceylon, the West Indian Islands, and on the coast of Australia.

As already stated, at modern depths of not exceeding 30 to 40 feet, and with clear water, sufficient light is transmitted to enable the diver to perform any ordinary work, and in working in turbid water with the diving-bell candles are employed. Mr. Siebe has also constructed an electric lamp and an oil lamp which can be employed where light requires to be used by divers at great depths. Captain Eads states that at the Mississippi bridge candles were at first employed, which, under a pressure of 100 feet, were found to be burnt down in about three-fifths of the time required in the open air; under a pressure of 80 feet it was found that a candle, if blown out by the breath, would immediately reignite, and at the depth of 108½ feet a candle was blown out thirteen consecutive times in the course of a half minute, and each time excepting the last was re-ignited.

The depth at which diving can be safely conducted is a question of importance. The ordinary depth at which the diving-bell has been employed in harbor works is from 30 to 35 feet, and it has been used in 60 feet at Dover. With the diving-dress much greater depths have been attained.

DIVISION. See **LOGIC**.

DIVORCE is the dissolution of the relationship of marriage. Few social questions are surrounded with greater difficulty than this. For what causes divorce should be granted, and whether complete divorce should be granted at all, in the sense of authorizing the spouses to contract new marriages, are points on which civilized societies have arrived at very different conclusions. Modern practice and opinion are to be traced mainly to two sources of principle, viz., Roman law and the Christian religion. The effect of the spread of Christianity was to reinvest marriage with the religious character from which in the later law of Rome it had completely escaped, and the history of divorce in modern times has been the gradual decay of the restrictions which were thought appropriate to the religious character of the institution of marriage. At the same time these restrictions have nowhere disappeared. The opinion of society visibly fluctuates between the belief that marriage is a civil contract only, and the belief that it is a contract of a peculiarly sacred character, the dissolution of which must not be lightly, if at all, permitted by human legislation. Again, divorce appears to be regarded sometimes as a penalty against the offending spouse, sometimes as a right to which the innocent spouse is entitled. It will be granted only if a matrimonial offense is proved to have been committed, but it will not be granted if such an offense has been committed on both sides. Hence a certain amount of inconsistency in legislation about divorce, which is in no system more remarkable than in our own, founded as it is on the doctrines of the canon law, modified by the opinions of secular judges, and altered by Acts of Parliament.

In Roman law marriage was regarded as a voluntary union which might be terminated at any time by the consent of the parties. No legal process was required, although the abuse of the power of divorce was sometimes punished. If a wife had not passed under the *manus* of her husband, her father might withdraw her from the union against the wishes of both parties. A constitution of Antoninus Pius limited this power. Until the time of Justinian divorce by consent of both parties does not appear to have been subject to any restriction. Justinian, however, allowed it in only three specified cases, viz., for impotency, or when either party desired to enter on a monastic life or was for a long time in captivity. "At a later period Justinian enacted that per-

sons dissolving a marriage by mutual consent should forfeit all their property and be confined for life to a monastery, which was to receive a third of the forfeited property, the remaining two-thirds going to the children of the marriage. This severity, so much at variance with the Roman spirit, indicates the growing power of the clergy (*ut non Dei judicium contemnatur*).” (Hunter’s *Roman Law*, p. 500.) These prohibitions were repealed in the next reign. Divorce by the husband against the wish of his wife was a power much more likely to be abused than that of dissolving marriage by mutual consent. Although the legal right was recognized, it is said not to have been acted on for a period of 500 years, and Spurius Carvilius is said to have been the first who put away his wife for barrenness. Harshness in the exercise of the power was condemned by public opinion, and sometimes punished by the authority of censors. L. Antonius, a senator, was expelled from the senate for a harsh divorce of a young wife. The wife who had not come under the *manus* of the husband had the same power of repudiating the marriage at will. Later legislation curbed this excessive license. By the *lex Julia et Papia Poppæ*, a husband divorcing a wife for adultery might retain one-sixth of her dowry; for any smaller offense, only one-eighth. When a husband was guilty of adultery he had to repay the dowry at once; if the fault were less serious, in six months. Constantine allowed the wife to divorce the husband in the following cases—1, for murder; 2, for being a preparer of poison; 3, for violating tombs. Just causes for repudiation by the husband were—1, adultery; 2, preparing poisons; 3, being a procuress. A wife divorcing her husband for other than the specified grounds forfeited the dowry, and might be punished by deportation. Similarly a husband lost his interest in the dowry of his wife by an injurious divorce. Similar provisions are to be found in the legislation of Honorius and Theodorus (421 A.D.), of Theodosius and Valentinian (449 A.D.) Justinian settled the grounds of divorce as follows:—The wife could divorce her husband—1, for conspiracy against the empire; 2, attempting her life; 3, attempting to induce her to commit adultery; 4, wrongfully accusing her of adultery; 5, taking a paramour to his house or frequenting any house in the same town with a paramour. On a divorce for these reasons a wife recovered her dowry, and obtained her husband’s portion as well. If she divorced for other reasons she forfeited her dowry, and could not marry for five years, as in the legislation of Theodosius and Valentinian. So a husband might justly divorce his wife for—1, concealment of plots against the empire; 2, adultery; 3, attempting her husband’s life, or concealing plots against him; going to baths or banquets with other men; remaining from home against her husband’s wish; 6, going to circus, theater, or amphitheater against his wish. In such cases the husband retains the dowry for life, or if he has no children absolutely. In other cases penalties as fixed by previous legislation of Theodosius and Valentinian apply. The grounds for divorce specified in these various enactments are an interesting commentary on contemporary manners.

These experiments in divorce legislation display anxiety to regulate the relationship of marriage as a purely civil institution, with a view mainly to public decorum and the comfort of individuals. When marriage had manifestly failed it was no longer worth preserving, and it had failed when either of the parties showed a desire to withdraw from the alliance. At the same time an innocent party must be protected against the caprices of an unjust spouse, and such protection was sought by the device just described. It is a remarkable illustration

of the Roman view of marriage that, in view of what must have been the great social evil of capricious divorce, the right of either party to dissolve the marriage was never successfully questioned. From the pure Roman to the canon law the change is great indeed. The ceremony becomes sacred, the tie indissoluble. Those whom God hath joined let not man put asunder, was the first text of the new law of marriage, and against such a prohibition social convenience and experience pleaded in vain. While marriage once created became indissoluble, the impediments to marriage also multiplied. The canon law annulled a marriage *ab initio* for causes which we should now consider wholly inadequate. The tie of consanguinity was extended to the eighth generation; and affinity, it was held, might be established by adulterous intercourse without marriage. The power of dispensing with canonical disabilities, and the power of annulling marriage on the ground of such disabilities, belonged to the church, and were important aids to its influence in society. In countries which have embraced the doctrines of the Reformation, a relaxation of the law of divorce has generally followed the changes of religion—whether immediately, as in Scotland, or indirectly, as in England. In Roman Catholic countries the theory of the canon law still rules.

The history of divorce in English law is particularly interesting. Down to the passing of the Divorce Act of 1858, the theory of the law of England was the same as the theory of the Roman Church. There were attempts during the period of the Reformation to introduce a greater license of divorce, and in the *Reformatio Legum Ecclesiasticarum* (a code of ecclesiastical law projected by a royal commission, but never enacted) the leaders of the Reformation sanctioned principles which would even now be considered liberal. Divorce was to be granted for adultery, and the innocent spouse was to be permitted to marry again. Other grounds for divorce were specified, such as desertion and continued absence, and savageness of temper. Separation *a mensa et thoro* was to be superseded by this more complete remedy. And the more advanced Reformers advocated even greater liberty of divorce. The nature of their proposals, and the arguments by which they reconciled them with the language of Scripture, may be studied in Milton’s tractate on the *Doctrine and Discipline of Divorce*, addressed to the Parliament of England. But the law remained unchanged. The constitution of marriages belonged to the jurisdiction of the ecclesiastical courts. The tie was indissoluble. The marriage, indeed, might be declared null and void in certain cases, e.g., where the parties were within the prohibited degrees of consanguinity or affinity. This proceeding was not a dissolution of marriage so much as a declaration that no real marriage had taken place between the parties. Divorce *a mensa et thoro* was granted for adultery and cruelty. Here the marriage, being originally good, was not dissolved, but a separation was ordered for a limited or indefinite time. The spouses were not permitted to marry again. But while the law remained unchanged, the practice of granting complete divorces by private Acts of Parliament had come into existence. The legislature did in particular cases that which it refused to do by a general law. Two conditions were in general necessary to satisfy Parliament. 1st, A divorce *a mensa et thoro* had to be obtained from the ecclesiastical court. 2d, An action for damages had to be brought against the adulterer in the civil court for criminal conversation. The latter was not absolutely necessary, and appears to have been regarded as a safeguard against divorce being granted to persons who had connived at the acts of adultery, or had themselves been guilty of misconduct in the marriage state. The passing

of these Acts through Parliament became a matter of as much formality as a proceeding in an ordinary law court. The two Houses passed standing orders on the subject, under which bills on divorce were argued before the lay lords by professional advocates, and generally neither the House of Commons nor the lay lords interfered. By this characteristic evasion, the law of England completely changed its practice while still maintaining its ancient theory of divorce. Probably the anomalous character of the remedy might not have brought about a change but for the great practical evil of the expense attending the proceedings. Three suits—ecclesiastical, civil, and parliamentary—were necessary. Divorce became a remedy for the rich. The poor were driven to bigamy. Yet it was not until 1857—and not then without determined resistance—that this disgraceful state of things was changed. A commission appointed in 1850 recommended the establishment of a regular court for divorce, and that divorce should be granted for the wife's adultery but not for the husband's unless aggravated by other offenses. Bills constructed on these principles were introduced into Parliament, and successively abandoned or lost, until, in 1857, the ministry of the day, by great exertions, carried the bill which is now the Act of 20 and 21 Vict. c. 85. Notwithstanding the hostility it excited, the bill proposed little more than a consolidation of jurisdictions; and proceedings in the Divorce Court have now, with few exceptions, the same object and result as the former proceedings in Parliament and in the civil and ecclesiastical courts. The action for damages for crim. con. is represented by the adulterer being made a party to the husband's suit. Full divorce is granted on the principles usually recognized by the House of Lords; and the other remedies are such as might formerly have been granted by the ecclesiastical court.

United States.—The matrimonial law of England, as at the time of the Declaration of Independence, forms part of the common law of the United States. But as no ecclesiastical courts have ever existed here, the law was considered to have been inoperative. There is no national jurisdiction in divorce, and though it is competent to Congress to authorize divorces in the territories, still it appears that this subject like others is usually left to the territorial legislature. In the different States, as in England, divorces were first granted by the legislatures, whether directly or by granting special authority to the tribunals to deal with particular cases. This practice has, it appears, fallen into general disrepute, and by the constitution of some States legislative divorces are expressly prohibited. Apart from such express prohibitions, it has been contended that legislative divorces are debarred by general clauses in the Constitution of the United States, or in the constitution of particular States. Thus the Constitution of the United States says that no State shall pass a law impairing the obligation of contracts, and it has been argued that this clause prohibits legislative divorces. Bishop states that it "is settled law that legislative divorces are not invalid as impairing the obligation of contracts." Again, some States forbid their legislatures to pass any retrospective laws; and legislative divorce, it has been said, is of the nature of a retrospective statute, and authority on that point seems to be divided. Again, in some States it is contended that a legislative divorce is an infringement of the judicial power, and therefore unconstitutional. The judicial practice throughout the States is to confer jurisdiction in divorce on the courts of equity, to be administered in general accordance with the ordinary rules of equity practice. Each State, of course, determines for itself the causes for which divorce may be granted, and no general statement of the law can be made.

In most States it appears to be allowed, not only for adultery, but for cruelty, willful desertion, and habitual drunkenness. In New York divorce is allowed only for adultery; in South Carolina not for any cause; in some other States for causes to be determined by the court in the exercise of its discretion. South Carolina, says Bishop, (*Marriage and Divorce*, 1873), is the only State in which no divorce, legislative or judicial, has ever for any cause been granted; and he quotes judicial testimony to show that the effect of this state of things is to bring about a partial recognition of concubinage. The proportion of his goods which a married man may leave to his concubine has in fact been fixed by statute. Among the less usual grounds for divorce which have been recognized in particular States, habitual drunkenness has been mentioned above, which has been defined to be a fixed habit of drinking to excess, to such a degree as to disqualify a person from attending to his business during the principal portion of the time usually devoted to business. In Kentucky the offense must be accompanied with a wasting of his estate, and without any suitable provision for the wife and children. Gross neglect of duty, and more particularly neglect or refusal to maintain his wife on the part of a husband having ability to do so, are in some States grounds of divorce. In New Hampshire, if either spouse joins a society believing the relation of husband and wife to be unlawful, and accordingly refuses cohabitation for three years, that is a sufficient ground of divorce, and "the Shakers" have been held to be such a society. In the same State "to be absent and not heard of" for three years is ground for divorce. Conviction for crime is a tolerably common ground. "Gross misbehavior and wickedness," and "offering indignities to the wife so as to render her condition intolerable and her life burdensome," are also specified causes of divorce in some States. In Missouri and North Carolina it has been held under such a clause that a false accusation of adultery brought by the husband against the wife was a valid ground for divorce; and in Missouri, where the court subsequently held that the statute contemplated indignities to the person only, and not to the mind (as in the case of a false charge), the State Legislature amended the statute by specifying as a cause for divorce "the offering such indignities to the other as to make his or her condition intolerable."

DIXMERIE, NICOLAS DE LA. See LA DIXMERIE.
DIXON, GEORGE, an English navigator, born in 1755. He served under Captain Cook in his third expedition, during which he had an opportunity of learning the commercial capabilities of the northwest coast of America, and was thus prompted to the expedition in connection with which his own name is celebrated. After his return from Cook's expedition he became a captain in the royal navy. In 1785 he offered his services to the King George's Sound Company of London in making a minute exploration of the northwest coast of America. His offer having been accepted, he set sail in the autumn of that year in command of the *Queen Charlotte*—a companion ship, the *King George*, being under the command of Captain Portlock. The voyage resulted in the discovery of numerous small islands, ports, and bays, of which Queen Charlotte's Island, Port Mulgrave, Norfolk Bay, and Dixon's Archipelago may be named as the most important. From North America he sailed to China, where he disposed of his cargo. He returned to England in 1788. In the following year he published an account of his voyage, entitled *A Voyage Round the World, but More Particularly to the Northwest Coast of America*, the bulk of which consists of descriptive letters by William Beresford, his supercargo. His own contribu-

tion to the work included valuable charts and appendices. In 1791 he published *The Navigator's Assistant*. He died about 1800.

DIZFUL, or DESFUL, formerly known as *Anda-el-Misk*, a town of Persia, in the province of Khuzistan, thirty-six miles northwest of Shuster, on the right bank of the Shat-el-Diz, or Abzal, a tributary of the Karun, and there crossed by a fine bridge of twenty arches, the lower part of which is of ancient workmanship.

DMITRIEFF, IVAN IVANOVITCH (1760-1837), a Russian statesman and poet, was born in the government of Simbirsk.

DMITROFF, a town of Russia, in the government of Moscow, forty-five miles due north of the city of that name.

DMITROVSK, a town of European Russia, in the government of Orel, near the Nerusa, a sub-tributary of the Dnieper, about fifty-seven miles southwest of the town of Orel.

DNIEPER, the Borysthenes of the Greeks, Danapris of the Romans, Uzi of the Turks, Eksi of the Tartars, Elice of Visconti's map (1381), Lerene of Conarini (1437), and Luosen of Baptista of Genoa (1514), is one of the most important rivers of Europe, ranking after the Volga and the Danube. It belongs to Russia, and takes its rise in the government of Smolensk, in a swampy district at the foot of the Valdai Hills, not far from the sources of the Volga and the Dwina. Its length is about 11,000 miles, and it drains an area of 242,000 square miles, which supports a population of upward of 12,000,000 inhabitants. In the first part of its course, which may be said to end at Dorogobush, it flows through an undulating country of Carboniferous formation; in the second it passes west to Orsha, south through the great fertile plain of Kisheneff and Chernigoff, and then southeast across the rocky steppe of the Ukraine to Ekaterinoslaff. About forty-five miles south of this town it has to force its way across the same gigantic offshoot of the Carpathian Mountains which interrupts the course of the Dniester and the Bug, and for a distance of about forty miles rapid succeeds rapid. The whole fall of the river in that space is 155 feet—the greatest of the ten distinctly marked rapids, that at Nenasitetz, having an average of three inches in every fifty feet, and the smallest, or the *Levni Porog*, about one and three-fifths of an inch in the same distance. The river, having got clear of the rocks, continues southwest through the grassy plains of Kherson and Tauris, and enters the Black Sea by means of a considerable estuary. The navigation of the Dnieper extends as far up as Dorogobush, where the depth is about twelve feet, and rafts are floated down from the higher reaches.

DNIESTER, the Tyras of the classical authors, and the Turla of the Turks, a river of southeastern Europe belonging to the basin of the Black Sea. It takes its rise on the northern slope of the Carpathian Mountains in the Sambor circle of Galicia, and belongs for the first 330 miles of its course to Austrian, for the remaining 600 to Russian territory. The river falls into the sea by several shallow arms, of which the most important has a depth of only two and one-half feet near its mouth; but the Turunchuk, an independent stream, disemboing in the neighborhood, has a depth of seven or eight feet, and is connected with the main channel of the Dniester by the Surovitzoff canal, so named after the merchant at whose expense it was constructed.

DOAB, or DUAB, or DOOAB, a name, like the Greek Mesopotamia, applicable, according to its derivation (*do*, two, and *ab*, river), to the stretch of country lying between any two rivers, as the Barea Doab between the Sutlej and the Ravee, or the Reechna Doab between

the Ravee and the Chenab, but frequently employed, without any distinctive adjunct, as the proper name for the region between the Ganges and its great tributary, the Jumna. In like manner the designation of Doab Canal is given to the artificial channel which breaks off from the Jumna, near Fyzabad, and flows almost parallel with the river till it reunites with it at Delhi.

DOBELL, SYDNEY (1824-1874), a distinguished English poet, born on April 5, 1824, at Cranbrook, Kent. He wrote a number of minor poems instinct with a passionate desire for political reform. *The Roman* was also in progress, and was written mainly among the Cotswolds. It appeared in 1850, under the *nom de plume* of Sydney Yendys. Next year he traveled through Switzerland with his wife; and, after his return, he formed friendships with Robert Browning, Philip Bailey, George Macdonald, Emanuel Deutsch, Lord Houghton, Ruskin, Holman Hunt, Mazzini, Tennyson, and Carlyle, and conducted an interesting correspondence with Charlotte Brontë. His second large poem, *Balder*, written partly at Coxhorne, partly among the Alps, and finished at Amberly Hall, appeared in 1854. The delivery of an elaborate lecture on the "Nature of Poetry" to the Edinburgh Philosophical Institution, in April, 1857, seriously injured Dobell's chest. Accordingly he spent the winters of the four following years in the Isle of Wight; and, after 1862, the winter generally found him on the Continent, the summer in Gloucestershire. On one occasion, while near Naples, he fell through a thin crust of earth into some underground works, to a depth of about twelve feet. This accident proved injurious to his health; and, in 1869, a mare, which he was trying to break, fell and rolled over with him. After this he was, more or less, an invalid, and lived in Gloucestershire, preserving his admiration for natural beauty, his keen interest in public affairs, his sunny sweetness of temper, and deep religious feeling, till his death in 1874.

DOBELN, a town of Saxony, in the circle of Leipsic, and thirty-five miles to the southeast of that town, standing partly on an island formed by the Mulde.

DOBERAN, or DOBBERAN, a market town of Northern Germany, in the grand duchy of Mecklenburg-Schwerin, about two miles from the shores of the Baltic, and seven west of Rostock.

DOBRENTÉI, GÁBOR (*i.e.*, GABRIEL), (1736-1851), a Hungarian philologist and antiquary, was born at Nagyszöllös.

DOBRIZHOFFER, MARTIN (1717-1791), a Roman Catholic missionary, whose fame is preserved by the historical interest and the literary character of his narrative.

DOBROWSKY, JOSEPH (1753-1829), one of the earliest and greatest of Slavonic philologists, was born of Bohemian parentage at Gjermet, near Rabb, in Hungary.

DORRUDJA, or DOBRUDSCHA, in Bulgarian Dobritch, is the district lying between the Black Sea and the lower reaches of the Danube, by which it is separated from Roumania. The southern part of its area of 2,900 square miles is occupied by an irregular steppe stretching north from the Balkan range; while the northern belongs to the alluvial tract produced by the action of the river. The predominant element in its heterogeneous population, which is estimated at 160,000, consists of the Tartars, whose numbers have been greatly augmented by immigration since 1859; but there are also Turks, Bulgarians, Roumanians, Greeks, Armenians, Germans, and Jews, and all the various nationalities remain strikingly distinct, and usually occupy more or less exclusively their separate settlements.

DOBSCHAU, or DOBSINA, a town of Northern Hungary, in the comitat of Gömör, on the Dobsina. In the vicinity are mines of iron, copper, cobalt, and mercury.

DOBSON, WILLIAM (1610-1646), an English portrait and historical painter, born at London.

DOCETÆ, a name applied to these heretics in the early Christian church who held that Christ, during his life, had not a real or natural, but only an apparent or phantom body. Docetism springs from the same roots as Gnosticism, and the Gnostics generally held Docetic views. Accordingly, for a fuller account of the principles out of which Docetism arose, and of the various modifications it assumed, the reader is referred to the article Gnosticism.

DOCK, the name applied to the plants constituting the section *Lapathum* of the genus *Rumex*, and natural order *Polygonaceæ*. The leaves of the docks are pinnate-veined, and are never sagitate or hastate; the flowers which are arranged in two to five rows, in alternate fascicles similar to whorls, are generally perfect, and have three free styles, multifid stigmas, six stamens, and the three inner perianthsegments or petals in some cases tubercled; the fruit is an achene. The naturalized species, *R. alpinus*, or "Monk's Rhubarb," was early cultivated in Great Britain, and was accounted an excellent remedy for ague.

DOCK. See HARBORS.

DOCKYARDS. When Henry VIII. first established a regular king's dockyard at Woolwich, he appointed a board, consisting of certain commissioners, for the management of all naval matters; and it is curious enough, that the regulations which he made for the civil government of the navy, and which were in the reign of Edward VI., revised, arranged, and turned into ordinances, form the broad basis of all the subsequent instructions given to the several officers to whom the management of civil affairs of the navy has been committed. The commissioners of the navy then consisted of the vice-admiral of England, the master of the ordnance, the surveyor of the marine causes, the treasurer, comptroller, general surveyor of the victualling, clerk of the ships, and clerk of the stores. They had each their particular duties; and once a week they were ordered to meet at their office on Tower Hill, and once a month report their proceedings to the lord high admiral.

In 1609 the principal officers for conducting the civil affairs of the navy were suspended, in consequence of many abuses being complained of; and other commissioners were appointed, with powers to manage, settle, and put the affairs of the navy into a proper train, and to prevent, by such measures as might appear to be necessary, the continuance of the many great frauds and abuses which had prevailed.

In the disturbed reign of Charles I. the navy was suffered to go to decay; but by the extraordinary exertions of Cromwell it was raised to a height which it had never before reached; it again declined, however, under the administration of his son. At the Restoration, the Duke of York, of whom Macaulay wrote that he was the only honest man in his dockyards, was appointed lord high admiral; and by his advice a committee was appointed to consider a plan he had drawn out for the future regulation of the affairs of the navy, at which he himself presided.

The entire management of the navy was now in the hands of the duke, as lord high admiral, by whom three new commissioners were appointed to act with the treasurer of the navy, the comptroller, the surveyor, and clerk of the acts, as principal officers and commissioners of the navy. A book of instructions, drawn out by Pepys, was sent to the navy board for its guidance. A

rapid progress was made in the repair and augmentation of the fleet; but the duke being called away, in consequence of the Dutch war in 1664, the example of zeal and industry set by Pepys was not sufficient, in the duke's absence, to prevent neglect and mismanagement in every department, except his own.

From 1673 to 1679, the office of lord high admiral was put in commission with Prince Rupert at the head of it. The king, through Pepys, arranged all naval affairs; but in the latter year, when the duke was sent abroad, and Pepys to the Tower, a new set of men were made commissioners of the navy, who, without experience, ability, or industry, suffered the navy to go to decay. Pepys was reappointed secretary of the Admiralty; the king instituted an inquiry into the characters and abilities of the first ship-builders in England, and by the advice of Pepys added Sir Anthony Dean, eminent in that profession, with three others, to the former principal officers. The old commissioners were directed entirely to confine their attention to the business of a committee of accounts. To each of the new commissioners was intrusted a distinct branch of the proposed reform; and it appears that, highly to their credit, "they performed what they had undertaken in less time than was allowed for it, and at less expense," having completed their business to the general satisfaction of the public two months before the Revolution. The business of the navy, thus methodized and settled, remained undisturbed by that event.

It will readily be seen that the vast increase of the naval force of Great Britain since that time has necessarily required many additional orders and regulations, some of which, from circumstances, were not compatible with each other; some were given to one dockyard and not to another; others in one yard became obsolete, while they continued to be acted upon in another; so that there was no longer that uniformity in the management which it is desirable—indeed, essentially necessary—to preserve.

The management of the dockyards, and of all the civil affairs of the navy, was formerly intrusted to certain commissioners, of whom the comptroller of the navy, three surveyors, and seven other commissioners formed a board at Somerset House, for the general direction and superintendence of the civil concerns of the navy, subject to the control of the Admiralty. At most of the yards, both home and foreign, was a commissioner of the navy, who was nearly always a naval officer of the rank of captain.

In 1832 Sir James Graham, then First Lord of the Admiralty, substituted for these commissioners five departmental officers, who were called "principal" officers of the navy. These were the surveyor of the navy, the accountant-general, the storekeeper-general, the comptroller of victualling and transports, the director general of the medical department (see ADMIRALTY). To these were subsequently added a director of works and a director of transports. In 1869 this arrangement was modified. The post of storekeeper-general was abolished, and the duties discharged by him were incorporated with the department of the comptroller of the navy, who had a few years before superseded the more limited surveyor of the navy; the office of comptroller of victualling was also modified, and the work of his department was incorporated with that of the Admiralty generally, under the control of the sea lord. The business of purchase and sale for each of the five departments was at the same time concentrated in one purchase department under a director of navy contracts.

Victualling Establishments.—At each of the dockyards at Deptford, Portsmouth, and Plymouth are

victualling establishments for supplying the fleet with provisions and water; and also at Cork, Cape of Good Hope, Gibraltar, Malta, Jamaica, Halifax, Trincomalee, Rio de Janeiro, Barbados, Sierra Leone, Hong Kong, Valparaiso, and Bermuda. The victualling board at Somerset House consisted formerly of a chairman and deputy chairman, and five other commissioners, two secretaries, a registrar of securities, and 136 clerks.

The transport board having been dissolved at the end of the great French war, its twofold duties were divided between the navy and victualling boards; those which concerned the hiring of transports devolved on the commissioners of the navy, and those which related to the sick and hurt department, on the commissioners of the victualling board, on whom also devolved the direction and superintendence of all the naval hospitals at home and abroad. These have also merged in the Admiralty, where there is a transport department under the supervision of a director of transports—a naval officer, first appointed after the Crimean war.

At one time, the men in the dockyards were employed almost wholly on job and task-work. Between 1850 and the present time, they have been almost wholly on a day pay, smaller than that given in the general trade, but having a title to a pension, contingently upon good service and good behavior, attached to it. In 1869 Mr. Childers cut down to a considerable extent the "establishment" system of dockyard-men, replaced the vacancies with hired men on higher pay, but without a title to pension, and with the usual liability to discharge at a week's notice when work is slack. The salaried system, with its concomitant vested interests, was not found to be productive of quick, and therefore, of economical work. Mr. Childers' alteration improved matters not a little, but job and task-work, besides being more in accordance with the usages of the day, is far more likely to interest and stimulate the men. One great advantage, however, of the salary system, is the discouragement it gives to strikes. The conditions under which alone pensions are earned, act as deterrents.

In ordinary years the number of workmen of all kinds required for the service of the dockyards is, in round numbers, 16,000.

The dockyards of the principal states at the present time are as follows:—

Austria	Pola and Trieste.
Denmark	Copenhagen.
France	Cherbourg, Brest, L'Orient, Rochefort, Toulon.
Germany	Kiel, Dantzic, Wilhelmshafen.
Great Britain ..	Chatham, Portsmouth, Sheerness, Devonport, Keyham, Pembroke, Woolwich, Hanlbowline, Malta, Bermuda.
Italy	Spezzia, Naples, Castellamare.
Russia	Cronstadt, St. Petersburg, Sebastopol, Nicolaieff.
Spain	Cartagena, Cadiz.
United States ..	Portsmouth, Charlestown, Brooklyn, Philadelphia, Washington, Norfolk, Pensacola, Mare Island (Pacific).

DOCTOR, denoting etymologically a teacher, is the title conferred by the highest university degree. Originally there were only two steps in graduation, those of bachelor and master, and the title doctor was given to certain masters as an alternative or as a merely honorary appellation. It is in this sense that the word is to be understood in the phrase *Doctor Angelicus* applied to Aquinas, and in many other familiar instances of a similar kind. The process by which the doctorate became established as a third degree, distinct from and superior to that of master, cannot be very clearly traced. At Bologna it seems to have been conferred in the faculty of law as early as the twelfth century, but there is no sufficient authority for the statement commonly made

that the celebrated Irnerius drew up the formulary for the ceremonial, and that Bulgarus was the first who took the degree. Paris, the other great university of the Middle Ages, conferred the degree in the faculty of divinity, according to Antony Wood, some time after 1150, the earliest recipients being Peter Lombard and Gilbert de la Portree. In England the degree was introduced in the reign of John or of Henry III. Both in England and on the Continent it was confined for a considerable period to the faculties of law and divinity; it was not until the fourteenth century that it began to be conferred in medicine, and in England it is still unknown in the faculty of arts. In Germany, however, there is a degree of doctor of philosophy. The doctorate of music was first conferred at Oxford and Cambridge; its use in Germany is comparatively recent. See **UNIVERSITIES**.

DOCTORS COMMONS was a society of ecclesiastical lawyers in London, forming a distinct profession for the practice of the civil and canon laws. Some members of the profession purchased in 1567 a site near St. Paul's, on which at their own expense they erected houses for the residence of the judges and advocates, and proper buildings for holding the ecclesiastical and admiralty courts.

DOCTRINAIRES, the name applied by its opponents to a small but very influential political party in France which made itself prominent after the restoration of the Bourbons in 1815. The *doctrine* or fundamental principle on which its action was based was that the sole justification of any form of government was the manner in which it exercised its power. Rejecting the claim of divine right, whether urged for monarchy or for republicanism, the Doctrinaires were opposed alike to the ultra-royalists and to the revolutionists. In the chamber they occupied the left center, and thus marked themselves out from the center or ministerialist and the left or opposition party. While maintaining the re-established dynasty their efforts were mainly directed toward molding the constitution into a shape resembling as nearly as possible that of England. The leaders of the Doctrinaires were Royer-Collard, the Duc de Broglie, and Guizot. After the revolution of 1830 several of them came into power and proved strong supporters of constitutional monarchy on the model that has existed in England since the reign of William. The name Doctrinaires fell entirely out of use after 1848, but the principles of the party have been faithfully represented since that date by the Orleanists. See **FRANCE**.

DODDER, the popular name of the annual, leafless, twining, epiphytic plants forming the genus *Cuscuta* and natural order *Cuscutaceæ* or, according to the botanists, the tribe *Cuscutæ* of the *Convulvaceæ*. All the species are natives of temperate regions, and all have strong acrid properties.

DODRIDGE, PHILIP, a celebrated nonconformist divine. His popularity as a preacher is said to have been chiefly due to his "high susceptibility, joined with physical advantages and perfect sincerity." His sermons were mostly practical in character, and his great aim was to cultivate in his hearers a spiritual and devotional frame of mind. His principal works are *The Rise and Progress of Religion in the Soul*, *The Family Expositor*, *Life of Colonel Gardiner*, and *A Course of Metaphysical, Ethical, and Theological Lectures*.

DÖDTELEIN, JOHANN CHRISTOPH WILHELM LUDWIG, a distinguished German philologist, was born at Jena on December 19, 1791. In 1815, soon after completing his studies at Berlin, he accepted the appointment of ordinary professor of philology in the Academy of Bern. In 1819 he was transferred to

Erlangen, where he became second professor in Philology in the university and rector of the gymnasium. In 1827 he became first professor of philology and rhetoric and director of the philological seminary. He continued to discharge the duties of both these offices until within a short period of his death, which occurred on November 9, 1863. Döderlein's most valuable work as a philologist was rendered in the department of etymology and lexicography.

DODO, from the Portuguese *Doudo* (a simpleton), a large bird formerly inhabiting the island of Mauritius, but now extinct — the *Didus ineptus* of Linnæus.

DODONA, in Epirus, was the seat of the most ancient and venerable of all Hellenic sanctuaries. In the plain of the Dodonæa, and on the banks of the neighboring Achelous, there dwelt in times long anterior to history the race of Helli or Hellenes, who thence spread into Thessaly and Greece. In after times the Greeks of the south looked on the inhabitants of Epirus as barbarians; nevertheless for Dodona they always preserved a certain reverence, and the temple there was the object of frequent missions from them. This temple was dedicated to the Pelagic Zeus, the wielder of the thunderbolt in the storms so frequent in Epirus. Connected with the temple was an oracle which enjoyed more reputation in Greece than any other save that at Delphi, and which would seem to date from more early times than the worship of Zeus; for the normal method of gathering the responses of the oracle was by listening to the rustling of an old oak tree, which was supposed to be the seat of the deity, and by taking thence an augury of the future. We seem here to have a remnant of the very ancient and widely diffused tree-worship. Sometimes however, auguries were taken in other manners, being drawn from the moaning of doves in the branches, the murmur of a fountain which rose close by, or the resounding of the wind in the brazen tripods which formed a circle all round the temple. The oracle was thus, compared with the articulate responses of Delphi, dumb, but none the less constantly consulted. Cræsus proposed to it his well-known question; Lysander sought to obtain from it a sanction for his ambitious views; the Athenians frequently appealed to its authority during the Peloponnesian war. But the most frequent votaries were the neighboring tribes of the Acarnanians and Ætolians, together with the Bœotians, who claimed a special connection with the district.

DODSLEY, ROBERT, an eminent book-seller and versatile writer, born in 1703 at Mansfield, Nottinghamshire, where his father is said to have been a schoolmaster. In his youth he was apprenticed to a stocking-weaver, from whom he ran away, taking service as a footman. His first poetical attempts seem to have been made when he was a servant in the family of the Hon. Mrs. Lowther, and were published by subscription under the title of *The Muse in Livery, or the Footman's Miscellany* (1732). This was followed by an elegant little satirical farce called *The Toyshop*, the hint of which is said to have been taken from Randolph's *Muse's Looking-glass*, and which, having obtained the approbation of Pope, was acted at Covent Garden with great success. The profits accruing from the sale of these two publications enabled him to establish himself as a bookseller in Pall-Mall; and his merit and enterprising spirit soon made him one of the foremost publishers of the day.

DODWELL, EDWARD (1767–1832), an English antiquarian writer and draughtsman of considerable note in the department of classical investigation.

DODWELL, HENRY (1641–1711), a learned controversial writer, was born at Dublin.

Gibbon speaks of his learning as "immense," and

says that his "skill in employing facts is equal to his learning." In the department of ecclesiastical polity his works are more numerous and of much less value, his judgment being far inferior to his power of research. In his earlier writings he was regarded as one of the greatest champions of the non-jurors; but the absurd doctrine which he afterward promulgated, that immortality could be enjoyed only by those who had received baptism from the hands of one set of regularly ordained clergy, and was therefore a privilege from which dissenters were hopelessly excluded, justly deprived him of the confidence even of his friends.

DOG, a name common to several species of *Canidae* — a family of Carnivorous Mammals widely distributed over nearly every part of the globe. Many of the species belonging to this family, as the wolf and the jackal, are social animals, hunting in packs, and readily tamed; while in confinement they show little or no repugnance to breeding. In a group thus eminently capable of domestication, it is not surprising that in the earliest times one or more species should have been brought under the dominion of man, or that under human care the domestic dog should have become, as Baron Cuvier calls it, "the completest, the most singular, and the most useful conquest ever made by man." There is sufficient evidence to show that the dog existed in the domesticated state during prehistoric times; consequently neither history nor tradition is available to solve the question of its origin. That must be decided, if at all, by the naturalist, and the variety of opinion existing on this point at the present time renders it exceedingly improbable that the parentage of the dog will ever be ascertained with certainty. Some suppose that all our breeds have sprung from a single wild source, others that they are the product of the blending of several distinct species. Of the former, the majority regard the wolf as the parent form, others favor the claims of the jackal, while a few regard them as the descendants of an extinct species, and point to the fossil remains of a large dog, found in the later Tertiary deposits, as the probable wild stock. The prevalent belief at the present day is probably that which regards the domestic dog as the product of the crossing of several species, living and extinct. This opinion is founded on such considerations as the presence in the earliest historic times of many breeds (totally distinct from each other, and nearly resembling existing forms), the existence of wild species of dogs in all quarters of the globe, the fondness of savage man for taming wild animals, and the extreme improbability that among so many presumably equally tameable canine species only one should have been chosen for domestication. Nor is it to be forgotten, as Darwin has well shown, that fear of man in most wild animals is a gradually acquired instinct, and that before its acquirement a wild species would have been much more readily tamed than after.

Thus the wild dog of the Falkland Islands (*Canis antarcticus*), when these were first visited by man, approached him without sign either of fear or of aversion. The weightiest reason for this opinion, however, lies in the fact that many of the breeds of domestic dogs, found in different countries, bear a more or less striking resemblance to the wild species still existing in those countries. The Esquimaux dogs of North America so closely resemble the wolf of the same regions, both in appearance and in voice, that Sir J. Richardson on one occasion mistook a pack of those wild animals for a troop of Indian dogs; and the Indians are said to take the young of wolves in order to improve their canine breed, which would seem to prove that the dog and wolf are sufficiently fertile *inter se*. The Hare Indian or Mackenzie River dog, al-

though somewhat smaller in size than the prairie wolf (*Canis latrans*), occurring in the same regions, so resembles the latter that Richardson could detect no decided difference in form. It seems, in fact, to bear the same relation to the prairie wolf that the Esquimaux dog does to the great gray wolf already mentioned. The wolf certainly exhibits few peculiarly dog-like qualities, being both ferocious and cowardly, and showing no attachment to man; but instances, nevertheless, are on record of tamed wolves which in their gentleness, in love for their masters, and in intelligence, showed true dog-like capacity. The Esquimaux dogs are likewise decidedly wolfish in disposition, showing little or no attachment to their owners, and sometimes, it is said, even attacking them when pressed by hunger. Distinct varieties of the wolf occur in Europe and in India, and such European breeds as the shepherd dog of Hungary so closely resemble the wolf that a Hungarian has been known to mistake that animal for one of his own dogs; while certain of the Hindu parish dogs are said by Blyth to resemble the Indian variety of wolf. The large semi-domesticated dogs of the northern parts of both hemispheres may thus be regarded as principally derived from the various species and varieties of wolves still existing there. The period of gestation in the wolf and dog is the same, being sixty-three days in both. In the tropical regions of the Old World the wolf disappears, and with it the prevalence of wolf-like dogs, their places being taken by smaller breeds, such as certain of the pariah dogs of India and of Egypt, between which and the jackals abounding in those countries no structural difference can, according to Geoffroy Saint-Hilaire, be pointed out. Their period of gestation agrees with that of the dog and wolf, and, like dogs, tamed jackals, when caressed, "will," says Darwin, "jump about for joy, wag their tails, lower their ears, lick their master's hands, crouch down, and even throw themselves on the ground, belly upwards;" when frightened, also, they carry their tails between their legs. Jackals associate readily with dogs, and their hybrid offspring are not sterile; there is also an instance on record of one of these which barked like an ordinary dog. The habit of barking, so characteristic of dogs, is not, however, universal among them, the domestic dogs of Guinea and certain Mexican breeds being described as dumb. This faculty appears to be readily lost and to be capable of reëquirement. The domestic dogs which ran wild on the island of Juan Fernandez are said to have lost the power of barking in thirty-three years, and to have gradually reëquired it on removal from the island. The Hare Indian dog makes an attempt at barking, which usually ends in a howl, but the young of this breed born in the Zoölogical Gardens seem to possess this faculty to the full extent. In tropical America, where jackals are unknown, there are several wild species of dogs to which the domestic breeds of those regions bear a considerable resemblance, and at the present day the Arawak Indians cross their dogs with an aboriginal wild species for the purpose of improving the breed. In Australia the Dingo, regarded by many as constituting a distinct species indigenous to that country, its remains having been found in caves associated with those of other extinct mammals, occurs both in the wild state and domesticated at the present day. Darwin, after reviewing this question, concludes that "it is highly probable that the domestic dogs of the world have descended from two good species of wolves (*Canis lupus* and *C. latrans*), and from two or three other doubtful species of wolves, namely, the European, Indian, and North African forms, from at least one or two South American canine species, from several races

or species of the jackal, and perhaps from one or more extinct species.

Remains of the dog, of Neolithic age, occur in the kitchen-middens of Denmark, and in similar deposits in Switzerland. In Denmark the earliest known dog is followed, in the Bronze period, by a larger breed, and that by a still larger form in the succeeding or Iron period; while a somewhat similar succession occurs in Switzerland. These successive changes, however, may merely indicate the appearance in those countries of new races of prehistoric man, who brought with them their own dogs. In historic times the earliest records of the dog are to be found in the figures of these animals on Egyptian monuments from three to five thousand years old; and these show that thus early, such varieties as the hound, greyhound, watch-dog, and turnspit were cultivated on the banks of the Nile. By the ancient Egyptians the dog was worshiped under the title Anubis, as the genius of the River Nile—the appearance of Sirius, the dog star, corresponding with the time of the annual rise of that river. The city of Cynopolis was built in its honor, and there its worship was carried on with great pomp. Certain kinds of dogs were regularly sacrificed to Anubis, their bodies being afterward embalmed; and occasionally the mummies of these are still found. The earliest record of the dog in sacred history is in connection with the sojourn of the Israelites in Egypt; and the religious homage paid to it by their oppressors may probably explain why the Jews were taught to regard it as unclean. Under Moslem law, which in many matters was founded upon Jewish practices, the dog occupies an equally degraded position; and throughout Mahometan countries at the present day, their generally wretched condition bears ample testimony to the neglect and ill-treatment to which for centuries they have been subjected. The pariah dogs of Eastern cities know no master; they prowl about the streets in troops, eating whatever garbage may come in their way, thus serving the useful purpose of scavengers, and occasionally receiving a meal from the more humane of the inhabitants. On no account, however, must even the garments of an orthodox Mahometan be defiled by their touch, and such is the intelligence and sagacity of these ownerless curs that, having become aware by painful experience of this religious prejudice, they seem to take the greatest care to avoid giving such offense. The value set upon the dog by the Egyptians seems to have been shared in by the ancient Greeks and Romans, who possessed many breeds closely allied to still existing forms. Those early breeds, however, are remarkable for the entire absence of pendulous ears, which do not make their appearance till near the decline of the Roman Empire. By both Greeks and Romans they were employed in the chase, and in war, and for the latter purpose they were armed with spiked collars, and sometimes even with a coat of mail. Corinth was said to have been saved by fifty war dogs, which attacked the enemy that had landed while the garrison slept, and which fought with unbounded courage till all were killed except one, which succeeded in rousing the garrison.

Dogs are naturally carnivorous, preferring flesh that is slightly putrid; but they can also live on vegetable food, and in countries where the dog itself is eaten, it is generally thus fed. In drinking it laps with its tongue, and it never perspires, although when heated its tongue hangs from its mouth, and a fluid runs from it. When about to go to sleep, no matter where, it turns round and round, and scratches the ground with its fore-paws as if to form a hollow couch, and in this seemingly senseless action it is no doubt continuing a habit once found useful to its wild progenitors. Its sense of

smell and hearing are exceedingly acute, and many suppose that the remarkable power possessed by the dog, in common with the cat, of finding its way for great distances along unknown roads may be due to the exercise of the former sense. The differences that obtain between the various breeds of dogs are very great, the skulls, according to Cuvier, differing more from each other than they do in the different species of a natural genus. The molar teeth, which normally consist of six pairs above and seven below, sometimes number seven pairs above and below, while, in the hairless dog of Egypt the teeth are sometimes reduced to a single molar on each side, incisors and canines being entirely wanting. Some varieties are six times as long as others, excluding the tail, and the number of vertebrae in the latter organ is also exceedingly various; nor is the number of mammae always uniform, there being five on each side in some, and four in others, while occasionally the number on the two sides is unequal.

While man has thus bestowed great attention on the physical development of the dog, and availing himself of natural variations has, by careful selection and intercrossing, molded the dog into an almost infinite variety of forms, he has also, by education, developed its moral and intellectual capabilities, so that the dog may, in this respect, be said to have, within its own limits, kept pace with its master's advancement; and it is undoubtedly owing to a certain community of feeling existing between dog and man that this domestic animal has, since the earliest times, been regarded as the companion as well as the humble servant of mankind. There are few human passions not shared in by the dog. It is, like him, subject to anger, jealousy, envy, love, hatred, and grief; it shows gratitude, pride, generosity, and fear. It sympathizes with man in his troubles, and there are numerous instances on record of its showing sympathy for the distressed of its own kind. It remembers, and is evidently assisted thereto, as man is, by the association of ideas; that it is not devoid of imagination may be assumed from the fact that it dreams, pursuing in its sleep imaginary game. Its judgment is often singularly correct; while it may almost be said to have a religion, in which man is its god, and his will its rule of conduct, disobedience to which produces an evident feeling of shame and a quiet submission to punishment. It shares with man an awe of the unknown, and the most courageous dog will often tremble at the sudden rustle of a leaf. While the possession of such faculties has rendered him fit above all other animals for the companionship of man, the physical and intellectual qualities characteristic of the various breeds have been seized upon and developed to their utmost by man, so as to enable him to use the dog for a great variety of purposes.

According to Professor Fitzinger, there are at least 189 distinct varieties of the domestic dog, and when it is considered that the origin of many, if not most, of these is uncertain, it is not surprising that considerable difference of opinion should exist as to the most natural mode of grouping them together. Their arrangement into the following six races, founded to a certain extent on the form and development of the ears, probably affords an approximation to a natural classification, viz., WOLFDogs, GREYHOUNDS, SPANIELS, HOUNDS, MASTIFFS, and TERRIERS.

DOGE, a modified form of the ordinary Italian *duce*, from the Latin *dux*, a leader or duke, employed to designate the chief magistrate in the republics of Genoa and Venice. In both cities the office underwent from time to time a variety of transformations, for details on which the larger histories of the republics must be consulted.

In Venice the doge was originally chosen by universal suffrage, held office for life, and was regarded as the civil, military, and ecclesiastical chief. His duties and prerogatives were not defined with much precision, and the limits of his ability and ambition were practically the limits of his power. In 755 his independence was diminished by the appointment of two assistants or *duumvirs*; but this institution was again allowed to fall into the background, and the doge acquired more and more of irresponsible authority, while at the same time the office was usually committed to a member of one or other of the more powerful families. This tendency toward a hereditary despotism was checked in 1033, by Flabénigo's law, which reinstituted the *duumvirate*, and declared distinctly that no doge had the right of associating any member of his family with himself in the government, or of transmitting his office on his decease. In 1172 a still more important change was introduced; not only was the *duumvirate* replaced by a body of six counselors, but universal suffrage was abolished, and the election of the doge intrusted to a committee of twelve persons, elaborately selected from the members of the great council. On the death of Ziani II., in 1229, two commissioners were appointed, which obtained a permanent place in the constitution, and gave emphatic testimony to the fact that the doge was merely the highest servant of the community; the first consisted of five *Correttori della promissione ducale*, whose duty was to consider if any change ought to be made in the oath of investiture administered to the doge; the second was a board of three *inquisitori sul doge*, intrusted with the curious task of examining and passing judgment on the acts of the deceased magistrate, whose estates might be mulcted in accordance with their decision. To minimize as far as possible the influence of individual families, the election of the doge was, in 1268, effected by a curiously complex machinery, which remained, with some modifications, till the close of the republic; thirty members of the great council, elected by ballot, selected nine members, who in their turn chose forty; of these forty twelve taken by lot chose twenty-five; the twenty-five were next reduced to nine; the nine elected forty-five; the forty-five were reduced to eleven; and the eleven chose the final forty-one in whose hands lay the actual election of the doge. In proportion to the development attained by the oligarchical element in the constitution, the more important functions of the office were assigned to other officials or to administrative boards, and he who had once been really the pilot of the ship became little more than an animated figure-head, properly draped and garnished. On state occasions he was still attended by all the ceremonial observances of former times; his robe was still purple, the horns of his beretta were still exalted, the sword, the tapers, and the trumpets were borne before him, his leaden seal was affixed to public documents, and the ring was still dropped yearly from his hand in symbolic espousal of Venice and the sea. But he was under the strictest surveillance, had to wait for the presence of other officials in order to open the dispatches from foreign powers, was forbidden to leave the city, could not legally be possessed of property in a foreign land, or contract a foreign alliance for any of his children, and was moreover liable to the infliction of a fine for any trespass he might commit. The office was maintained, however, till the last days of the republic, and from time to time was held by men who knew how to make it something more than such an empty simulacrum.

In Genoa the institution of the doge dates from 1339, and at first he was elected without any restriction by popular suffrage, and held office for life; but after the

reform effected by Andrea Doria in 1528, the term was reduced to two years, plebeians were declared ineligible, and the appointment was intrusted to the members of the great and the little councils, who were bound, however, to employ, in proof of impartiality, nearly as complex a machinery as that of the later Venetians.

DOG-FISH, a name applied to several species of the smaller sharks, and given in common with such names as hound and beagle, owing to the habit these fishes have of pursuing or hunting their prey in packs. The Small-spotted Dog-fish or Rough Hound and the Large-spotted or Nurse Hound are also known as ground-sharks. They keep near the sea bottom, feeding chiefly on the smaller fishes and Crustacea, and causing great annoyance to the fishermen by the readiness with which they take bait. They differ from the majority of sharks, and resemble the rays in being ovoviviparous. Their young are brought forth inclosed in semi-transparent horny cases, known on the British coasts as *mermaids' purses*, and these have tendril-like prolongations from each of the four corners, by means of which they are moored to sea-weed or some other fixed object near the shore, until the young dog-fish is ready to make its exit. They are, however, eaten, both fresh and salted, by fishermen, especially on the west coast of England.

DOGMATIC is the name usually given by modern writers, especially on the Continent, to that branch of theological study which treats of the doctrines of Christianity. As there are considerable varieties in the conception and treatment of dogmatic by different theologians, churches, and schools, it will be best to give a historical account of the origin and usage of the term.

The Greek word *dogma*, from which it is derived, has two meanings, one of which is found in the LXX. and New Testament, while the other is given to it by some of the ancient philosophical writers. By Plato, Cicero, Seneca, and others it is employed to denote the doctrines of the philosophers, *i.e.*, principles or theories formulated or accepted in the different schools. In this latter sense the word was used by the early Christian writers, as describing indifferently heathen, Christian, or heretical doctrines, as the case might be; although sometimes, when the word was applied to the Christian verities, it may have acquired, from the other use of it, a certain tinge of the idea of authority belonging to the doctrines of the faith.

But it was not till long afterward that the adjective, "dogmatic," was used to distinguish a particular branch of theological study; for in early times the need of subdivision in the scientific study of Christian truth was not felt, and the name theology was sufficient to describe all works dealing with that subject in any way. The progress of thought and inquiry in the history of the church has, however, made it possible and necessary to treat the truths of Christianity in various different ways, from distinct points of view; and hence different kinds and departments of theology have come to be distinguished.

The title *Theologia Dogmatica* was first adopted by John Francis Buddæus, a Lutheran divine, in 1724. This terminology was followed by J. H. Michaelis, Seiler, and others, and from it the word *Dogmatik* as a substantive came into common use in Germany. In England and America, in so far as any specific designation of the general term theology or divinity has been thought necessary, the title "systematic" has been until recently more current than "dogmatic." As, however, the division and mutual relations of the various theological studies have been very thoroughly discussed in

recent times, especially by German theologians, and as the name "dogmatic" has been used by them to denote one principal department of these, there is good reason for its adoption by English writers. Some prefer the form "dogmatics," after the analogy of "mathematics," "physics," etc.; but this seems awkward and needless.

But there is among the best authorities on the subject a considerable difference as to the proper nature and place in the theological sciences of dogmatic. There are two distinct conceptions of its nature, each supported by eminent names, according to one of which it is an historical, and according to the other a philosophical study. The difference may be said to turn on what substantive is to be understood along with the adjective *dogmatica*. If, according to what was undoubtedly the older usage, we supply *theologia*, then the name "dogmatic theology" would denote the study of God and divine things in a doctrinal manner, or so as to exhibit its results in a series of doctrines. The epithet dogmatic would indicate, not the subject of the study, but the manner of it; and thus it would fall under the general head of philosophical or systematic theology.

This was the older view, and is held in modern times by Julius Müller and Hagenbach. If, however, it be held, as is held by many moderns, that *scientia* is the substantive understood with *dogmatica*, then the term means the science of doctrines, and has for its object not the Christian realities themselves, but the doctrines that have been formed about them; and as such it must be a historical science. This is the view adopted by Schleiermacher, Rothe, and others; though the particular form and development of the general idea differs according to the different views of these writers as to the nature and formation of doctrines. There can be no doubt that a historical and critical study of the doctrines that have been held in the Christian Church or its several branches is a legitimate, and in its own place, not unimportant pursuit, and whether such study should be called dogmatic is a mere question of nomenclature and usage. But it can be as little doubted that this study does not occupy that central place in the theological sciences that has usually been assigned to dogmatic, and is not fitted to supersede that direct study of Christian truth that has long borne the name of theology by way of eminence. Hence some of those who make dogmatic a merely historical science hold that there is required besides that a science of speculative theology, dealing directly in a philosophical way with the objects of Christian faith; while Al. Schweizer thinks that dogmatic, as a science of dogmas, should be discarded as essentially un-Protestant, and that in its stead should be placed what he calls *Glaubenslehre*. It is clear that we must have some name to express the former conception of dogmatic, and there is no other name so convenient or so generally used as this. On the other hand, all are not agreed on the necessity and importance of a separate science of dogmatic in the historical conception of it; and it is not easy to draw a line of distinction between it and symbolical theology, or the study of the creeds and confessions of the different churches. It seems, therefore, convenient to regard dogmatic as a branch, not of historical, but of systematic or philosophical theology. In this view it is the study which endeavors to understand the facts and truths of Christianity in their true nature, causes, and mutual relations. This study presupposes the reality of Christianity, as the divinely-revealed and perfect religion, and on that basis proceeds to investigate what is contained in it with a view to its scientific comprehension. It is thus distinct from, and posterior in the order of nature to, apologetic, which is another branch of philosophical theology, and has for its function the scientific exhibition of the

grounds of religion in general and of Christianity in particular. Apologetics has accomplished its task, when it has established and vindicated against attacks that Christianity is truly divine, and the final form of revealed religion. Dogmatics accepts this conclusion as its starting-point, and proceeds to inquire what are the facts that constitute Christianity, how they are to be accounted for and what is their mutual relation. In this process it must needs generalize and determine the conceptions suggested by the facts by means of definitions, and combine these in the form of definite propositions, which are what are called doctrines, and which are again arranged and framed into a system of doctrine. Doctrines, as usually understood, have reference simply to truths to be believed; and they correspond to the laws of nature discovered and formulated by science. The leading theological doctrines are thus attempts to explain in a scientific way certain religious phenomena that belong to Christianity. In dealing simply with facts as distinct from laws, with what is as distinct from what ought to be, dogmatic is distinguished from ethic or moral theology, which is another branch of the same general division of theological studies. For Christianity is more than a revelation of truths; it is also a body of practical precepts; and the meaning, principles, and application of these afford a wide and important field of inquiry. There have indeed been some weighty and earnest protests raised against the separation of ethic from dogmatic; and there is a certain advantage in the two subjects being treated together, as they usually were by the older theologians, under the heads of *fides* and *observantia*, or the like. Christian doctrine and Christian duty can never be separated in reality without the loss of the life of both, and this should be kept in mind in their discussion. But each of these subjects has grown to such an extent that convenience almost necessitates the plan that has become usual in academic teaching and books, of giving them a separate treatment, and restricting the province of dogmatic to the truths of Christianity that are objects of belief, as distinct from its precepts as matters of duty. Polemic and irenic are branches of theology that have also a very close connection with dogmatic—the former having for its object the exclusion from the system of Christian doctrine of ideas and opinions that are essentially alien to its principles, and the latter the harmonizing or bringing into a relation of mutual toleration views of doctrine which differ in some particulars, and yet are neither of them essentially un-Christian or anti-Christian. These may be regarded as appendices to dogmatic, being the application of its principles to the varieties of belief that exist among Christians.

DOGWOOD, the name applied to plants of the genus *Cornus*, of the natural order *Cornaceæ* or cornels.

DOL, a town of France, in the department of Ille-et-Vilaine, about fifteen miles by rail from St. Malo, on an eminence in the midst of a marshy plain, protected from the inroads of the sea by a dyke of the twelfth century, which extends for a distance of twenty-two miles.

DOLABELLA, **PUBLIUS CORNILIUS**, a Roman general notorious for his profligacy, was born about 70 B.C. His vicious character made itself apparent even in his early years. Before his majority he is said to have been more than once guilty of capital crimes, from the punishment of which he was only delivered through the advocacy of Cicero. In the year 50 he forced his wife Fabia to leave him, and married Tullia, the daughter of Cicero, who strongly opposed the union. Dolabella's motive in establishing this connection was to prevent Cicero from giving evidence in favor of Appius Claudius, whom he had accused of having violated the sovereign

rights of the people. In the following year, his numerous creditors having become clamorous, he was forced to quit Rome, and betook himself to the camp of Cæsar, to the great regret of his father-in-law. During Cæsar's absence in Spain, Dolabella commanded the fleet in the Adriatic, but he did not gain any distinction. He took part in the battle of Pharsalus (48), after which he returned to Rome, in the expectation, delusive as it proved, that Cæsar would give him a substantial reward for his services, and so enable him to pay his debts. To gain immunity from the urgent demands of his creditors, he procured his election to the tribuneship, which he had no sooner done than he introduced a bill (*rogatio*) proposing that all debts should be cancelled. This was strongly resisted by his colleagues, and two parties were formed, between whom more than one bloody encounter took place in the streets of the city. On Cæsar's return from Alexandria he saw the expediency of removing Dolabella from Rome, and accordingly took him as one of his generals in the expedition to Africa and Spain. Dolabella was ambitious of the consulship, and obtained the promise of it, from Cæsar, for the year 44. The latter, however, influenced partly by the strong opposition of Antony, assumed the office himself, and deferred the fulfillment of his promise to Dolabella until he should set out on his expedition against the Parthians. The assassination of Cæsar occurring before this arrangement could be carried out, Dolabella at once seized the insignia of the consulship, and, making friends with Brutus and the other assassins, was confirmed in the office he had usurped. To ingratiate himself still further with the republican party, he caused an altar erected in honor of Cæsar to be thrown down, and many of those who had sought to offer sacrifices on it were crucified or thrown from the Tarpeian rock. He did not hesitate at once to change sides, however, when Antony made it his interest to do so by offering him the command of the expedition against the Parthians and the province of Syria. An unduly protracted and circuitous march was signalized by rapacious extortion, which became still more rapacious when at length Dolabella reached Syria. His crowning iniquity was the murder of Trebonius, at Smyrna, which according to Cicero's account, was preceded by two days' torture for the purpose of discovering the locality and amount of treasure contained in the town. On hearing of this gross abuse of power, the senate outlawed Dolabella, and declared him a public enemy. Cassius was appointed to supersede him, proceeded to Asia Minor, and had taken Laodicea, when Dolabella in despair caused himself to be killed by one of his own soldiers, 43 B.C.

DOLCE, **LUDOVICO**, or **LUIGI** (1508–1568 or 1569), one of the most laborious and multifarious writers of Italy in the sixteenth century, was a native of Venice, and belonged to a family of honorable tradition but decadent fortune. He received a good education, and early undertook the task of maintaining himself by his pen. His life, even more destitute of outward events than such a life usually is, may be briefly summed up in one word—he wrote. Translations from Greek and Latin, epics, satires, histories, plays, and treatises on language and art followed each other in rapid succession, till the whole number amounted to upward of seventy works. In his own day, his industry was rewarded by no small amount of fame; but he is now mainly memorable as the author of *Marianna*, a tragedy from the life of Herod, which was recast in French, by Tristan and by Voltaire, and still keeps a place on the stage.

DOLCI, **CARLO**, or **CARLINO** (1616–1686), a painter of considerable celebrity, was born at Florence. His works are not numerous. He generally painted in a

small size, although there are a few pictures by him as large as life.

DÔLE, a town of France, at the head of an arrondissement in the department of Jura, twenty-eight miles north of Lons-le-Saulnier, occupying the declivity of a hill on the right bank of the Doubs, which is there accompanied by the canal between the Rhone and the Rhine.

DOLET, ÉTIENNE (1509-1546), a French scholar and painter, whose fame is due as well to the painful romance of his life as to the high importance of his labors. A tradition, of what authority it is hard to say, makes him the illegitimate son of Francis I., and it is evident that he was at least connected with some family of rank and wealth. From Orleans, where he was born, he was taken to Paris about 1521; and after enjoying there the instruction of Nicholas Bérauld, the teacher of Coligni, he proceeded in 1526 to Padua. The death of his friend and master, Simon de Villanova, led him, in 1529, to accept the post of secretary to Jean de Langeac, French ambassador to the republic of Venice; but he managed, in spite of his new occupation, to attend the lectures of the Venetian scholar Battista Egnazio, and to write Latin love poems to some Venetian Elena, who died, however, before he left the city. Returning to France in 1530 he soon became involved in the violent disputes then raging between the different "nations" of the university, roused the anger of the public authorities by his keen condemnation of some of their measures, was thrown into prison, ran the risk of being assassinated, and was finally banished by a decree of the *parlement*. In 1535 he entered the lists against Erasmus in the famous Ciceronian controversy by publishing, through Sebastian Gryphe at Lyons, a *Dialogus de Imitatione Ciceroniana*; and the following year saw the appearance of his two folio volumes, *Commentariorum Linguae Latinae*. In 1537 he obtained from Francis I. a privilege to print during ten years any works in Latin, Greek, Italian, or French, which were the product of his own pen or had received his supervision; and accordingly, on his release from an imprisonment occasioned by his justifiable homicide of a painter, Campanini, he commenced at Lyons his typographical and editorial labors. That he was not altogether unaware of the dangers to which he was exposed from the bigotry and fierce-heartedness of the times is shown, not only by the tone of his mottoes, but also by the fact that he endeavored, first of all, to conciliate the theological wolves by publishing a *Cato Christianus*, or Christian moralist, in which he made profession of his creed. The catholicity of his literary appreciation, in spite of his ultra-Ciceronianism, was soon displayed by the variety of the works which proceeded from his press—ancient and modern, sacred and secular, from the New Testament in Latin to Rabelais in French. But long before the term of his privilege expired his labors were interrupted by the machinations of his enemies, who neither shrank from bringing against him what was then the most terrible of all accusations, nor relented in their pursuit till their purpose was completely realized. From a first imprisonment of fifteen months, their victim was released by the advocacy of Pierre Duchatel, Bishop of Tulle; and from a second he escaped by his own ingenuity; but, venturing back from Piedmont, whither he had fled in order that he might print at Lyons the letters by which he appealed for justice to the King of France, the Queen of Navarre, and the *parlement* of Paris, he was again arrested, hurried up to the capital, branded as a relapsed atheist by the theological faculty of the Sorbonne, and on August 3, 1546, put to the

torture, strangled, and burned in the Place Maubert. As if in prophetic mockery of their own proceedings, the doctors of the Sorbonne based their decision on the three words, *Rien du tout*, or "Nothing at all," inserted by Dolet in a passage of the *Axiochus* of Plato, which even without them denied, if not so emphatically, the immortality of the soul; and this they did in spite of the fact that, according to their own showing, his works must have been full of most damnable heresies, and had already, in 1543, furnished excellent fuel to the hangman's fire. Whether Dolet is to be classed with the representatives of Protestantism, or with the advocates of anti-Christian rationalism, has been frequently disputed; by the principal Protestants of his own time he was not recognized, and by Calvin he is formally condemned along with Agrippa and his master, Villanova, as having uttered execrable blasphemies against the Son of God; but, to judge by the religious character of a large number of the books which he translated or published, such a condemnation is altogether misplaced. His repeated advocacy of the reading of the Scriptures in the vulgar tongue is especially noticeable.

DOLGELLY, a market and assize town of Merionethshire, North Wales.

DOLLOND, JOHN, the celebrated optician, was the son of a French refugee, a silk-weaver at Spitalfields, where he was born, June 10, 1706. He was early trained to his father's occupation, but made leisure for the acquisition of a knowledge of mathematics, physics, Greek, Latin, the elements of anatomy, and other subjects. In 1752 he abandoned silk weaving in order to join his son Peter, who had entered upon business as an optical instrument maker in Vine Court, and before long he became universally celebrated as an optician. His last and most important contribution to the *Philosophical Transactions*, for which he, in 1758, received the Copley medal of the Royal Society, gave a description of the various experiments, begun early in 1757, on the combined effect of water and prisms and lenses of glass, by which he was led to the discovery of a means of constructing achromatic lenses. Sir Isaac Newton had stated in his *Optics* "that all refracting substances diverged the prismatic colors in a constant proportion to their mean refraction," and consequently "that refraction could not be produced without color," for which reason "no improvement could be expected in the refracting telescope." Dollond, however, found that as flint glass causes a greater dispersion in proportion to its refractive power than crown glass, achromatic magnified images could be obtained by using a combination of a doubly concave lens of the former substance with a doubly convex lens of the latter. As the two glasses to be combined were the segments of spheres of considerable curvature, the aberrations from their surfaces were very great, but by varying the surfaces he was enabled to make the aberrations equal, so that, as the refractions of the two glasses were contrary, they corrected each other. In 1761 Dollond was appointed optician to the king, and became a fellow of the Royal Society. On September 30th of that year, while reading a work by Clairaut on the theory of the moon, he had an attack of apoplexy, of which he died in a few hours.

DOLOMIEU, DÉODAT-GUY-SILVAIN-TANCRÈDE GRATET DE (1750-1801), a celebrated geologist and mineralogist, was born at Dolomieu, near Tour-du-Pin, in the department of Isère, in France. At the end of 1797, he joined the scientific staff, which, in 1798, accompanied Bonaparte's expedition to Egypt. He had proceeded up the Nile as far as Cairo, when ill health made his return to Europe necessary, and on March 7, 1797, he set sail from Alexandria. His ship, proving unseaworthy, put into Taranto, and as Naples was then at

war with France, all the French passengers were made prisoners. On May 22d, they were carried by ship to Messina, whence, with the exception of Dolomieu, they embarked for the coast of France. Dolomieu had been an object of the hatred of the Neapolitan court since 1733, when he revealed to the grand master of his order its designs against Malta, and the calumnies of his enemies on that island served now as a pretext for his detention. He was confined in a pestilential dungeon, where, clothed in rags, and having nothing but a little straw for a bed, he languished during twenty-one months. To the complaint that if unsupplied with some necessary he should die, his jailer replied, "What does it matter to me if you do? I have to give account to the king of nothing but your bones." Dolomieu, however, did not abandon himself to despair. Deprived of writing materials, he made a piece of wood his pen, and with the smoke of his lamp for ink he wrote upon the margins of a Bible, the only book he still possessed, his *Traité de Philosophie Minéralogique et Mémoire sur l'Espèce Minérale*. Friends entreated, but in vain, for his liberty; it was with difficulty that they succeeded in furnishing him with a little assistance, and it was only by virtue of a special clause in the treaty between France and Naples that, on March 15, 1801, he was released. On his arrival in France he commenced the duties of the chair of mineralogy at the museum of natural history, to which, after the death of Daubenton, he had been elected in January, 1799. His course of lectures concluded, he revisited Switzerland. Returning thence he reached the residence of his brother-in-law at Chateau-Neuf, in the department of Saône-et-Loire, where he was seized with a fever, to which in a few days he succumbed, November 25, 1801. Dolomieu's geological theories are remarkable for originality and boldness of conception.

DOLPHIN, the common name of a species of whale belonging to the family *Delphinide*. It usually measures from six to eight feet in length, and is thickest near the center, where the dorsal fin rises to a height of nine or ten inches, and whence the body tapers toward both extremities. The forehead descends abruptly to the base of the slightly-flattened beak, which is about six inches long, and is separated from the forehead by a transverse depression. The mouth is armed with sharp, slightly curved teeth, of uniform size, varying in number from forty to fifty on each side of either jaw, and those above locking exactly with the teeth below. The aperture of the ear in dolphins is exceedingly minute; the eyes are of moderate size and the blow-hole is crescent-shaped. The color of the upper surface is black, becoming lighter on the flanks, and perfectly white on the parts beneath. Like many other cetaceans, the dolphin is gregarious, and large herds are often seen following ships in full sail, and disporting themselves on the surface of the water as if delighted at the near proximity of man. In such exercises they exhibit the most remarkable agility, individuals having been known to leap to such a height out of the water as to fall upon the deck. Their aquatic gambols and apparent relish for human society have attracted the attention of mariners in all ages, and have probably given rise to the many fabulous stories told of dolphins by ancient historians. Their appearance at sea was formerly regarded as a good omen by sailors, for although it presaged a tempest, yet by thus giving warning of its approach, it enabled them, in those days when the mariner's compass was unknown, and navigators had consequently to keep within sight of the coast, to steer for a place of safety. The dolphin is exceedingly voracious, feeding on fish, cuttlefishes, and crustaceans.

DOMAT, or DAUMAT, JEAN (1625-1696), a cele-

brated French juriconsult, born at Clermont, in Auvergne. He was closely in sympathy with the Port-Royalists; was intimate with Pascal, and at the death of that celebrated philosopher was intrusted with his private papers. He is principally known from his elaborate legal digest, in four volumes, 4to, under the title of *Lois Civiles dans leur Ordre Naturel Suivies du Droit Public* (1689)—an undertaking for which Louis XIV. settled on him a pension of 2,000 livres. This is one of the most important works on the science of law that France had produced.

DOMBROWSKI, JAN HENRYK, Polish general, was born at Pierszowice, in the palatinate of Cracow, August 29, 1755. He was of noble family, and his father was an officer in the Saxon army. Brought up in Saxony, he entered and for some years served in the army; but when, in 1791, the Polish Diet recalled all Poles serving abroad, he returned to his native land. Placed then under the orders of Poniatowski, he took part in the campaign of 1792, against the Russians. In 1794 he distinguished himself in command of the right wing under Kosciuszko, assisted in the defense of Warsaw, and reunited the scattered Polish forces after its fall. He was compelled, however, to capitulate and to surrender himself prisoner of war at Radoszyce, November 18th. Suwaroff offered him a post in the Russian army, but this he declined, and for two years he lived in retirement. In 1796 the rank of lieutenant-general in the Prussian army was offered to him by the king; but this he likewise declined. He then went to Paris. The formation of a Polish legion was at this time in contemplation by the French authorities; and in January, 1797, Dombrowski was formally authorized by the government of the Cisalpine Republic to organize it. This task he executed at Milan. In command of his legion he played an important part in the war in Italy, entered Rome in May, 1798, and distinguished himself greatly at the battle of Trebbia (June 19, 1799). On this occasion he narrowly escaped death, being struck by a ball the force of which was broken by a volume of Schiller which he carried with him. He next served under Saint-Cyr and Masséna; but being severely wounded he was for some time incapacitated for action. After Marengo he was intrusted by Napoleon with the organization of two new Polish legions; and at the head of the new levies he captured, in January, 1801, the fortified post of Casa Bianca, near Peschiera. After the peace of Amiens he passed, as general of division, into the service of the Italian republic. Summoned by Napoleon after the battle of Jena to promote a rising in Poland, he returned there, took command of the Polish army, and distinguished himself at the siege of Dantzic (1807). He fought and was wounded at Friedland, and took an active part against the Austrians in the campaign of 1809. In the Russian campaign of 1812, he commanded a division of the great French army, and was wounded at the passage of the Beresina. He fought under General Marmont at the battle of Leipsic (1813), and in the following year returned to Poland. He was one of the generals intrusted by the emperor Alexander with the reorganization of the Polish army, and was named, in 1815, general of cavalry and senator palatine of the new kingdom of Poland. He retired, however, in the following year to his estates in Posen, and employed himself in preparing for publication his *History of the Polish Legions in Italy*, which was published some years after his death. General Dombrowski died at his seat at Wina-Gora in Posen, in June, or July, 1818.

DOVE is usually understood to mean a roof which is round or polygonal horizontally, and of which any vertical section is either a round or pointed arch. There

happen to be none of elliptical or any other section than these. But some, especially in the East, have what is called an ogival outline, convex below and concave toward the top, and these are generally called *cupoles*, though there is no real distinction. Most of the great European domes have an opening or eye at the top, on which stands a lantern, except in the Pantheon at Rome, where the eye is open. Until modern times all the domes worth notice were of masonry, *i.e.*, stone, brick, tiles, or pots, which last were used for lightness. Probably the first large wooden dome was St. Paul's, of which the construction is peculiar, the inner dome visible in the church being of brick only eighteen inches thick, except near the bottom, where it grows out of a cone of the same thickness going up outside it and carrying the stone lantern, which looks right down into the church through an eye in the internal dome. Outside the cone is built a wooden dome covered with lead. The domes of St. Peter's at Rome and Florence Cathedral are of two stone shells near together, and connected by some vertical ribs, and also carrying lanterns. But Wren's construction is infinitely stronger, since a cone sufficiently tied at the bottom cannot give way until it is absolutely crushed, while the bursting pressure of a weight on the top of a dome increases the bursting force enormously. St. Peter's dome is cracked in several places, and held together by bands, and it is covered with lead, and therefore looks no better than St. Paul's, and indeed on the whole not near so well, for various reasons which may be seen in architectural books; and the lantern is smaller in proportion.

DOMENICHINO, or **DOMENICO**, **ZAMPIERI**, the celebrated painter, born at Bologna on October 21, 1581. Toward the beginning of the seventeenth century he went to Rome, at the invitation of his fellow-pupil and intimate, Albano, and prosecuted his studies under Annibale Caracci. The faculty of Domenichino was slow in its development. He was at first timid and distrustful of his powers; while his studious, unready, and reserved manners were misunderstood by his companions for dullness, and he obtained the nickname of "the Ox" (Bue). But Annibale Caracci, who observed his faculties with more attention, predicted, that the apparent slowness of Domenichino's genius would in time produce what would be an honor to the art of painting. When his early productions had brought him into notice, he studied with extreme application, and made such advance as to raise his works into a comparison with those of the most admired masters of the time. From his acting as a continual censor of his own works, he became distinguished among his fellow-pupils as an accurate and expressive designer; his colors were the truest to nature; Mengs, indeed, found nothing to desire in his works, except a somewhat larger proportion of elegance.

In Rome, Domenichino obtained employment from Cardinals Borghese, Farnese, and Aldobrandi, for all of whom he painted works in fresco. The distinguished reputation which he had acquired excited the envy of some of his contemporaries. The pictures which Zampieri painted, representing subjects from the life of St. Cecilia, only increased the alarm of his competitors, and redoubled their injustice and malignity. Disgusted with these cabals, he left Rome for Bologna, where he remained until he was recalled by Pope Gregory XV., who appointed him principal painter and architect to the pontifical palace. In this architectural post he seems to have done little or nothing, although he was not inexpert in the art. He designed in great part the Villa di Belvedere at Frascati, and the whole of the Villa Ludovisi, and some other edifices. From 1630, onward, Domenichino was engaged in Naples, chiefly

on a series of frescoes (never wholly completed) of the life of St. Januarius in the Cappella del Tesoro. He settled in that city with his family, and opened a school. There the persecution against him became far more shameful than in any previous instance. The notorious so-called "Cabal of Naples"—the painters Corenzio, Ribera, and Caracciolo—leagued together as they were to exclude all alien competition, plagued and decried the Bolognese artist in all possible ways; for instance, on returning in the morning to his fresco-work, he would find not unfrequently that some one had rubbed out the performance of the previous day. Perpetual worry is believed to have brought the life of Domenichino to a close; contemporary suspicion did not scruple to speak broadly of poison, but this has remained unconfirmed. He died in Naples, after two days' illness, on April 15, 1641.

DOMESDAY BOOK, or simply **DOMESDAY**, is, in its commonest use, the name applied to the *Liber de Wintonia*, or Exchequer Domesday, a very ancient record containing a survey of all the lands of England, made in the time of William the Conqueror. It consists of two volumes—a greater and a less. The first is a large folio, written on 382 double pages of vellum, in a small but plain character, each page having a double column. Some of the capital letters and principal passages are touched with red ink, and some have strokes of red ink run across them, as if scratched out.

DOMICILE, in law, may be defined generally as the place of a man's permanent abode; but a precise definition of the word is a matter of acknowledged difficulty. Its use in jurisprudence is to fix the legal rights of a person in certain cases where it is felt that the application of the law of the country to which he owes allegiance on the one hand, or of the country in which for the moment he happens to be, would be attended with inconvenience.

DOMINIC, **St.**, founder of the Dominican order of monks, was born at Calahorra, a village of Old Castille, in 1170. His familyname is said to have been Guzman, an illustrious name connected with many of the most honorable families in Spain. Little is known of his father and mother, but in the mediæval legends his birth is surrounded with portents indicative of his future greatness. His childhood gave evidence of his future devotion and self-denial. He used to creep from his bed and prostrate himself on the hard boards. At seven years of age he quitted the paternal home for the house of his uncle, who was a churchman, and gave him his first lessons in divine things. At fifteen he went to the university of Palencia, afterward translated to Salamanca, where it attained reputation as the most famous university in Spain. He applied himself to letters and philosophy, but above all to theology—opening his mind, according to one of his biographers, to the true knowledge, and his ears to the doctrines, of Holy Scripture. Two stories are told of him at this time, showing the intensity of his character, and indicating the future zealot in behalf of religion and the church. He sold his clothes to feed the poor in a time of famine, and, to a woman who complained that her brother had been made a slave by the Moors, he offered himself to be given in exchange. His career as a student is obscure. He appears to have remained at the university for about ten years, and it is only in 1195, when he was twenty-five years of age, that he begins to emerge into notice. He is then one of the canons of Osma, under the guidance of a new and zealous bishop, whose heart was full of extending the power of the church and reforming its abuses. He gradually became known by his fervor as a preacher and the severity of his austerities, although it was still nearly ten years later, before

the opportunity came for him to show his true character and abilities. In 1203 the bishop of Osma was delegated to negotiate the marriage of Alphonso VIII. of Castile with a Danish princess, and for this he undertook a journey to Denmark with Dominic as his companion. Accustomed to the obedience and reverence everywhere paid to the clergy in Spain, a very different spectacle presented itself to them as soon as they crossed the Pyrenees, and found themselves in the plains and cities of Languedoc. There a new spirit—half poetical and half spiritual—had sprung up in opposition to the church. The Provençal poets found much of their inspiration in a prevailing excitement at the worldly vices and corruptions of the clergy, as well as in the chivalric loves and gayeties of their time. And in addition to the poets there had arisen in this interesting and beautiful country multitudes of preachers of a new, more simple, and more liberal faith. Peter de Brueys and Henry the Deacon became the organs of popular indignation against the superstitious observances which the priests everywhere encouraged—the worship of the cross, transubstantiation, prayers, alms, and oblations to the dead, and even infant baptism—for, as in all such cases of popular movement, the church was attacked not merely in its abuses but in its essential rites and its very existence. The “Poor Men of Lyons” rejected the whole church system, and permitted women to officiate at the altars. The “Paulicians,” a sect of Manichæans surviving from the fifth century, had spread from the East through the Greek provinces of Sicily and Italy, and settled among the other elements of disturbance in the South of France. “It was discovered,” as Gibbon says, “that many thousand Catholics of every rank and of either sex had embraced the Manichæan heresy;” and the flames consumed twelve canons of Orleans supposed to be tainted with the heresy. “The same vicissitudes of martyrdom and revenge as had been displayed in the East were repeated in the thirteenth century on the banks of the Rhone.” The result of all was a state of heretical insurrection and confusion sufficiently startling to men like St. Dominic, or even St. Bernard, who has left us a description of what he himself observed—“Churches without people, the people without priests, priests without respect, Christians without Christ; holy places denied to be holy, the sacraments no longer sacred, and holy days without their solemnities.”

In such a country, and in such a state of things, St. Dominic found his mission as a champion of the Church and a preacher of Catholic truth. Painfully impressed by what he saw on his journey to Denmark, he was so aroused by the spectacle of abounding heresy on his return that he resolved to devote himself to the conversion of the inhabitants, and the revival of the Church in a land which appeared to him so given over to evil. The Pope had sent legates thither for the correction and repression of the heretics, but after a year's labors they had met with no success, and were on their way back to report the failure of their mission at Rome. Dominic met with them on his journey, and, struck at once by their splendid retinue and their failure, he exclaimed—“How can you expect success with all this secular pomp? These men cannot be touched by words without corresponding deeds. The heretics deceive them by their simplicity. You must throw aside all your splendor, and go forth, as the disciples of old, barefoot, without purse or scrip, to proclaim the truth.” He acted without delay on his own principle, and betook himself to the profession of a mendicant preacher. Even the leates were shamed for a time to follow in the wake of the enthusiastic Spaniard. But their enthusiasm did not last long, and Dominic was left alone in his self-denying labors.

The atrocious crusade known as the Albigensian war, the violent incident and picturesque display of character on both sides, the pleasant, vacillating, and humiliated Count Raymond, the intrepid and bloodthirsty Montfort—all belong to history rather than to the life of Dominic. What part he really played in the war evades clear historical judgment. Did he share in its atrocities, as religious zealots in similar cases have often done, or did he mourn the interruption of his peaceful labors of conversion, and preach moderation to the conquerors, as well as penitence to the heretics? Facts fail us in the matter. All that is known is that he remained through all the friend of De Montfort, and obeyed the call to bless the marriage of his sons and the baptism of his daughter. This implies that the darker features of the crusade, and the conduct of its leader, awakened no such horror in him as they ought to have done; and when to this is added the glory (!) claimed for him of instituting the Holy Inquisition, the light which is thus thrown upon his character is far from pleasing. It is in no spirit of apostolic mildness, certainly, that he at last left the country, in 1217, after the death of De Montfort.

On leaving Languedoc, Dominic repaired to Rome and spent the remainder of his life in the organization of his order, which received the papal sanction in 1216, and which, under his generalship, had extended in the course of five years throughout most of the countries of Europe. He died at Bologna, in 1221, in the fifty-first year of his age. See DOMINICANS.

DOMINICA, in French DOMINIQUE, a British West India island, the largest in the Leeward group of the Lesser Antilles, lying between the French islands of Martinique and Guadeloupe, twenty-four miles north of the former and about the same distance south of the latter. It has the length of twenty-nine miles with a maximum breadth of sixteen, and its area is estimated at 291 square miles. The longer axis is formed by a chain of mountains, which attains in some parts a height of upward of 5,000 feet, and gives the whole island a strongly-marked profile and great irregularity of surface. The results and symptoms of volcanic activity are abundant, in the shape of solfataras, emissions of subterranean vapors, and hot springs; and in the southern part of the island there exists a boiling lake of unascertained depth, in which the water is frequently projected three feet or more above the surface by the force of the ebullition. Besides a large number of minor rivulets, upward of thirty streams of considerable size might be mentioned, and this abundance of natural irrigation develops great fertility in the rich volcanic soil. The hills are in many parts covered with valuable timber trees of the kinds commonly found in the West Indies; and the sugar-cane, coffee, cocoa, cotton, indigo, oranges, plantains, and arrow-root are grown in the lowlands. The island is botanically remarkable for the great number of peculiar species which it possesses in comparison with the poverty in this respect of Guadeloupe, Martinique, Montserrat, and Antigua: as many as twenty-four are mentioned by Grisebach. Game is abundant; the fisheries on the coast are productive; and large quantities of honey and wax are furnished by the wild bees, which were originally introduced from Europe. The coasts of the island are not much indented, and the only anchorages of importance are Prince Rupert's Bay and Roseau, both on the west side. The capital is Roseau, or Charlotteville, a fortified port near the southern end of the island, with about 5,000 inhabitants. Dominica was so named on its discovery by Columbus, in 1493, in commemoration of the date, which happened to be Sunday (*Dies Dominica*), November 3d. It was ceded to England by France at the

Peace of Paris in 1763, was captured by the French in 1778, regained by the English in 1783, again seized by the French in 1802, and finally surrendered to Britain in 1814.

DOMINICANS, the name by which the disciples of St. Dominic became known. The Dominican Order was founded, as stated in the article on the founder, in 1216 by a bull of Honorius III. It conformed to the general rule of the Augustinians, but further embraced a rule of absolute poverty or mendicancy, in addition to the usual vows of chastity and obedience. Its members were supposed to be exclusively devoted to preaching and public instruction, and were described as mendicant or preaching friars. The order held its first chapter in the year 1220, at Bologna, under the presidency of its founder. It adopted as its insignia within the cloister a white robe and white hood, to which it added outside a black cloak, hence the popular name of black friars by which the Dominicans became known in England. The novitiate was for a year, and candidates were mainly recruited from the schools founded by the order, which became the nurseries of great preachers and great theologians. The order speedily extended itself through the whole Christian world, and Popes, cardinals, and learned doctors sprang from it in numbers. Its preachers and teachers addressed all classes, invaded "the high places of the human intellect," and were soon found, as Milman says, "disputing in the universities of Italy and Germany, in Cologne, Rome, and Oxford. Before long they were to claim two of the greatest luminaries of the prevalent philosophy, Albert the Great and Thomas Aquinas."

DOMINIS, MARC ANTONIO DE, celebrated as a theologian and natural philosopher, was born in the Island of Arbe, in 1566. He was educated in the order of the Jesuits at their college at Loretto, and afterward studied at the University of Padua. He was employed for some time by the Jesuits as a teacher of rhetoric and mathematics, but he did not join the order. In 1596 he was appointed to the bishopric of Segni, and in 1602, he was raised to the archbishopric of Spalatro. His endeavors to reform the Church soon after made him obnoxious to the papal authorities, and he was compelled to leave his native country. Having become acquainted with Bishop Bedell, while the latter was chaplain to Sir Henry Wotton, ambassador from James I., at Venice, he communicated to that prelate his treatise *De Republica Ecclesiastica*, which was afterward (1617, 1620), published at London, with Bedell's corrections. The main argument of the work was directed against the superiority of the Bishop of Rome to other bishops. He came to England with Bedell, where he was received with great respect, and preached and wrote against the Roman Catholic religion. In 1619 he published, at London, Father Paul's *History of the Council of Trent*, with a dedication to King James. He was favorably received by the king, who bestowed on him the deanery of Windsor and other ecclesiastical preferments. But on the promotion of Pope Gregory XIV., who had been his schoolfellow and old acquaintance, he was deluded by Gondomar, the Spanish ambassador, into the hopes of procuring a cardinal's hat, and thus of proving an instrument of great reformation within the Church. Accordingly he returned to Rome in 1622, recanted his errors, and was at first well received; but he afterward wrote letters to England recanting his recantation, and, these being intercepted, he was imprisoned by Pope Urban VIII., and died in 1624. There were suspicions that he had been poisoned. Being convicted of heresy after his death, his body was exhumed and burned, and the ashes thrown into the Tiber. He is believed to have

been the first to promulgate a true theory of the rainbow in a tract *De Radiis Visus et Lucis in Vitris Perspectivis et Iride* (Venice, 1611).

DOMITIAN (52-96). Titus Flavius Domitianus, the second son of Titus Flavius Vespasianus and Flavia Domitilla, twelfth of the Cæsars, and third of the Flavian dynasty, was born at Rome, October 24, 52 A.D. He enjoys an evil prominence as the only tyrant among the succession of good and just princes from Vespasian down to Commodus. According to Suetonius, he was brought up in squalor and ignorance, and led a degraded and miserable youth; but it is hardly credible that so good a prince and so indulgent a father in all his other acts should thus have neglected his son's education, and the story of his scandalous youth was more probably invented to suit his afterlife. When Vespasian was proclaimed emperor, Domitian escaped with difficulty from the burning temple of the Capitol, and lay in hiding from the Vitellians till his father's party proved victorious. After the fall of Vitellius he was saluted as Cæsar, or prince imperial, by the troops, obtained the city prætorship, and was intrusted with the administration of Italy till his father's return from the East. Intoxicated by this sudden rise from obscurity, he grossly abused the power committed to him, and conducted himself more like a Turkish pasha than the son of a sturdy Sabine soldier. Such were the airs of authority he assumed that Vespasian, as the story goes, wrote in irony to thank him for not having dismissed his own father. Certain it is, that though in his father's lifetime he several times filled the office of consul, and after his death was nominally the partner in the empire with his brother, yet he never took any part in public business, but lived in great retirement, devoting himself to a life of pleasure and literary pursuits till he succeeded to the purple. The death of Titus, if not hastened by foul means, was at least eagerly welcomed by his brother. His succession (September 13, 81) was unquestioned, and it would seem as if, when his ambition was sated, and before his fears were aroused, he intended, as far as his weak volitions and mean abilities would allow, to govern well. Like Augustus, he attempted a reformation of morals and religion. As chief pontiff he inquired into the character of the vestal virgins, three of whom were found guilty, while in the case of one the awful penalty of a living entombment was revived. He enforced the laws against adultery, mutilation, and the grosser forms of immorality. He forbade the public acting of mimes. He erected many temples and public buildings and restored the temple of the Capitol, on the gilding of which, if Plutarch is to be believed, he expended 12,000 talents, or £2,500,000. He passed many sumptuary laws, one of which is noticeable as showing the increasing dearth of corn, which was now grown mainly by the wasteful and inefficient process of slave labor. An edict was issued forbidding the withdrawal of arable land from the plough, and reducing existing vineyards by one half. Finally, he took a personal share in the administration of justice at Rome, and exercised a jealous supervision over the governors of provinces.

Such public virtues counterbalanced in the eyes of the people all his private vices, gross and glaring as they were from the first. Former emperors had been deified after their death, but Domitian was the first to arrogate divine honors in his lifetime, and cause himself in public documents to be styled *Our Lord and God*. Doubtless in the poets (such as Martial, who calls the emperor's minion the Ganymede of our second Jove) this deification was nothing but fulsome flattery, but in the case of the provincials it was a sincere tribute to the impersonation of the Roman Empire, as the administrator of good government, and the peacemaker

of the world. Even when Rome and Italy felt his heavy hand, and smarted beneath his proscriptions and extortions, the provinces were undisturbed. Though he took the title of emperor more than twenty times, and enjoyed at least one triumph, his achievements as a general were insignificant. His campaign in 83 against the Chatti was "a mere summer promenade;" in Dacia (87) he received a severe check, and the peace concluded with this nation in 90 was due to the victories of his lieutenant, Julianus. Juvenal hints that the flax-haired Germans who figured in his triumph were purchased slaves. His jealousy was provoked by the successes of Agricola in Britain, and the conqueror of Gaius and the hero of the battle of the Grampians was recalled to Rome (84) in the midst of his conquests, condemned to retirement, and, as Tacitus is inclined to believe, removed by poison.

The revolt of Antonius Saturninus, the commander of the Roman forces in Upper Germany (93), marks the turning point in his reign. By a fortunate rising of the Rhine, which prevented his barbarian allies from coming to his assistance, and by the vigor of Norbanus, it was speedily crushed; but the fears of the emperor once aroused seem never again to have slept. A proscription as bloody as that of Sulla followed, and no man of eminence could feel his life safe. Before this he had sought out victims to gratify his cupidity and replenish his exhausted treasury. Now he struck at all that was conspicuous for talent or virtue, glutted himself with the blood of the Lamiae, and sentenced to death his own cousin and nephew by marriage, Flavius Clemens. A conspiracy among his own freedmen—set on foot, it is said, by his wife, who knew her own life to be threatened—cut short his career of tyranny and bloodshed. He was stabbed in his bedroom by a freedman of Clemens named Stephanus, September 18, 96.

DON, anciently TANAI, a river of European Russia, which ranks immediately after the Volga and the Dnieper. It rises in the Ivan Lake, a small basin in the government of Tula, which also sends a portion of its waters to the Volga by means of the Shat, a tributary of the Upa; its course has a general southern direction through the governments of Riasan, Tamboff, Orloff, Voronesh, and the Country of the Don Cossacks; its total length, inclusive of its various windings, is 1,325 miles, and its drainage area is calculated at 170,000 square miles.

DON COSSACK COUNTRY (in Russian *Donskogo Voiska Zemlya*, the Land of the Don Army), the south-west portion of European Russia, situated in the basin of the Don, and bounded in part by the Sea of Azoff. Its area, according to the military survey, is 59,650 square miles, or 135,761 square versts, but according to Schweizer 62,574 square miles, or 142,401 square versts. The most of the surface consists of an irregular steppe broken in some places by undulating elevations or conical hills, and traversed by the channels and ravines of the numerous tributaries and sub-tributaries of the principal river. The district to the north is especially flat, forming in fact, as is shown by the characteristics of its flora, a part of the great Aralo-Caspian depression.

DON JUAN, a legendary personage whose story, originating in Spain, has found currency in various poetic and dramatic forms throughout most of the countries of Europe. The character has a certain historic basis in so far as it is localized at Seville in the time of Peter the Cruel, or, according to another version, of Charles V. Don Juan, who belonged to the illustrious Tenorio family, lived a life of unbridled licentiousness. In an attempt to abduct Giralda, daughter of the Gov-

ernor of Seville, he was encountered by her father, whom he subsequently killed in a duel. In mocking defiance of the spirit world, in whose existence his sensuality had destroyed all faith, he visited the tomb of the murdered man in the vault of San Francisco and challenged his statue to follow him to supper. The invitation was accepted; the animated statue appeared at table among the guests, and carried the blaspheming skeptic to hell. In a few later dramatic versions of the story some features are introduced belonging to another personage of the same name, Don Juan of Marana, who, having sold himself to the devil, passed the greater part of his life in debauchery and crime. His mother, however, had provided that masses should be said for his salvation, and, being converted through the influence of these, he ended his days in a monastery, where he subjected himself to the severest penance.

DONAGHADEE, a market town of Ireland, in County Down, situated near the mouth of Belfast Lough on the Irish Channel, is the nearest port in Ireland to Great Britain.

DONALDSON, JOHN WILLIAM, a philologist and Biblical critic, born 1812, died February 10, 1761.

DONATELLO, the diminutive of Donato, was the son of Niccolo Bardi, and was born in Florence in 1386. He learned the goldsmith's trade under the father of the renowned Lorenzo Ghiberti, and the goldsmith's trade then included all kinds of bronze creations. At the age of seventeen he set out for Rome with his friend Brunellesco. At Rome the two young men maintained themselves by working as goldsmiths during the first half of the week, devoting the second half to the study of the ancient monuments, and to making excavations in search of lost works of art. The Romans, we are told, believed them to be treasure-seekers. The Romans of Donatello's time still reflected the feelings with which their forefathers, nearly three centuries before, had wondered when the agents of Henry of Blois, Bishop of Winchester, dug up and carried away from their city similar artistic treasures. On their return to Florence, rich in artistic knowledge and treasures, the career commenced in which Brunellesco was destined to hang above the Florence cathedral the dome of the Pantheon, and Donatello to impart to the multitudinous creations of his chisel the truthfulness and grace and power for which he was so largely indebted to his ancient models. There exist forty works of Donatello of unquestioned authenticity, and thirty-one respecting which controversies have arisen; and twenty-five, recorded by his contemporaries but no longer found, must be added to the number. When it is borne in mind that many of these works are life-size or colossal statues, or large bas-reliefs crowded with figures, an idea may be formed of the extent of his labors, prosecuted untiringly during a life which extended to eighty years. He was fortunate in the precise period of his labors. During the whole of the previous century Florentine art had concentrated its efforts on the creation of its grand architectural monuments. In the second half of the fifteenth century sculpture was cultivated, but chiefly to adorn the palaces and gratify the vanity of the rich. Donatello, placed between the two periods, could devote his genius to the execution of the great plastic works required for the completion and adornment of the public buildings of the state. Hence the statues of the church of St. Michele, those of Giotto's belfry, the pulpit St. Lorenzo, those in the baptistry, as well as all the other works which still remain exactly where first placed—unhappily no longer the case with the St. George—possess an exceptional beauty, for no sculptor ever studied more carefully than Donatello the exact relation of a work to its local destination. The varied and characteristic elements of

Donatello's art, what he borrowed from the antique, what peculiar tricks of drapery he took from his immediate predecessors, how, from his first habit of painting his figures he passed into a phase of purely sculptured effects, how he was influenced by his friend Brunellesco in his treatment of proportion and perspective, how he imparted a more pictorial character by the greater flatness of the figures to his bas-reliefs, all this forms one of the most interesting chapters in the history of Renaissance sculpture. He died at Florence in 1466. Donatello's greatest works, his *Baptist*, *David*, *Judith*, *St. George*, and *Mark*, are declared by some recent critics not to rise into the highest sphere of true Christian art. The sculptor, we are told, wanted the deep faith of Michelangelo. Perhaps the best corrective of this criticism is the language of Michelangelo himself, who, when gazing with generous admiration on the *St. Mark*, exclaimed, "So noble a figure could indeed write a gospel."

DONATI, GIOVANNI BATTISTA, professor of astronomy at the Royal Institution of Florence, was born at Pisa, December 16, 1826, and died at Florence, September 20, 1873.

DONATISTS, a powerful sect which formed itself in the Christian church of Northern Africa in the beginning of the fourth century. In its doctrine it sprang from the same roots, and in its history it had in many things the same character, as the earlier Novatians. The predisposing causes of the Donatist schism were the belief, early introduced into the African church, that the validity of all sacerdotal acts depended upon the personal character of the agent, and the question, arising out of that belief, as to the eligibility for sacerdotal office of the *traditores*, or those who had delivered up their copies of the Scriptures under the compulsion of the Diocletian persecution; the existing cause was the election of a successor to Mensurius, Bishop of Carthage, who died in 311.

DONATUS, ÆLIUS, a grammarian and rhetorician, who taught at Rome in the middle of the fourth century A.D., had the honor of numbering St. Jerome among his pupils, and was the author of a number of professional works.

DONAÜWÖRTH, a town of Bavaria, in the circle of Swabia-Neuburg, twenty-five miles N. of Augsburg, on the left bank of the Danube, at the confluence of the Wörnitz. It is of some importance as a river port, and the center of a considerable agricultural trade, but its main interest is historical.

DONCASTER, the *Danum* of Antoninus and *Dona Ceaster* of the Saxons, a municipal borough and market-town of England, in the west riding of Yorkshire, 32 miles S. of York and 156 miles N. of London by railway, in the line of the ancient Roman road of Ermine street, or, as some write, Watling street, is situated on the right bank of the Don, over which, and an arm of it called the Cheswold, it has two bridges.

DONEGAL, a maritime county in the extreme northwest of Ireland, in the province of Ulster, bounded on the N. and W. by the Atlantic Ocean, on the E. by Lough Foyle, and the counties of Londonderry and Tyrone, and on the S. by Donegal Bay and the counties of Fermanagh and Leitrim. It covers an area of 1,870½ square miles, or 1,197,154 acres, of which 22,880 are under water.

DONGOLA, or DONKOLA, a town of Egypt, in the district of the same name in the province of Nubia, situated on the left bank of the Nile, about forty-five miles above the Third Cataract. It is freely styled Dongola Makarah, or New Dongola, to distinguish it from Dongola Agusa, or Old Dongola, a now decadent village seventy-five miles farther up the river, which was formerly a flourishing fortified town, but fell into ruins after the devastation of the Mamelukes.

DONIZETTI, GAETANO. The life of Donizetti may be told in a few words. He was born at Bergamo in 1798, the son of a Government official of limited means. Originally destined for the bar, he showed at an early age a strong taste for art. At first, strangely enough, he mistook architecture for his vocation, and only after an unsuccessful trial in that direction did he discover his real talent. He entered the conservatoire of his native city, where he studied under Simon Mayr, the fertile operatic composer. His second master was Mattei, the headmaster of the celebrated music school of Bologna, where Donizetti resided for three years. After his return to Bergamo the young composer determined to devote himself to dramatic music, but his father insisted upon his giving lessons with a view to immediate gain. The disputes arising from this cause ultimately led to Donizetti's enlisting in the army. But this desperate step proved beneficial against all expectation. The regiment was quartered at Venice, and here the young composer's first dramatic attempt, an opera called *Enrico Conte di Borgogna*, saw the light in 1818. The success of this work and of a second opera, brought out in the following year, established Donizetti's reputation. He obtained his discharge from the army, and henceforth his operas followed each other in rapid and uninterrupted succession at the rate of three or four a year. Although he had to contend successively with two such dangerous rivals as Rossini and Bellini, he succeeded in taking firm hold of the public, and the brilliant reception accorded to his *Anna Bolena* at Milan carried his name beyond the limits of his own country. In 1835 Donizetti went for the first time to Paris, where, however, his *Marino Faliero* failed to hold its own against Bellini's *Puritani*, then recently produced at the Théâtre Italien. The disappointed composer went to Naples, where the enormous success of his *Lucia di Lammermoor* consoled him for his failure in Paris. For Naples he wrote a number of works, none of which is worth notice. In 1840 the censorship refused to pass his *Polito*, an Italian version of Corneille's *Polyeucte*, in consequence of which the disgusted composer once more left his country for Paris. Here he produced at the Opéra Comique, his most popular opera, *La Fille du Régiment*, but again with little success. It was not till after the work had made the round of the theaters of Germany and Italy that the Parisians reconsidered their unfavorable verdict. A serious opera, *Les Martyrs*, produced about the same time with the *Daughter of the Regiment*, was equally unsuccessful, and it was reserved to *La Favorita*, generally considered as Donizetti's masterpiece, to break the evil spell. His next important work, *Linda di Chamounix*, was written for Vienna, where it was received most favorably in 1842, and the same success accompanied the production of *Don Pasquale* after Donizetti's return to Paris in 1843. Soon after this event the first signs of a fatal disease, caused to a great extent by overwork, began to show themselves. The utter failure of *Don Sebastian*, a large opera produced soon after *Don Pasquale*, is said to have hastened the catastrophe. A paralytic stroke in 1844 deprived Donizetti of his reason; for four years he lingered on in a state of mental and physical prostration. A visit to his country was proposed as a last resource, but he reached his native place only to die there on April 1, 1848. The sum total of his operas amounts to sixty-four, the more important of which have been mentioned in this notice.

DONNE, JOHN, (1573-1631), poet and divine of the reign of James I., was born in London, of Catholic parents. At the University of Oxford his learning was extraordinary, and he was compared, for juvenile erudition, with Pico della Mirandola. In 1587 he was removed to Trinity

College, Cambridge, but he took no degree there or at Oxford, his scruples as a Catholic standing in the way. In 1590 he went up to London and was admitted into Lincoln's Inn. His father presently died, and left his son £3,000. Until he came of age, he was under his mother's care, and it is supposed that this was the period to which he refers in *Pseudo-Martyr*, in which an increasing conviction of the truth of Protestantism struggled with the old faith and the familiar surroundings. Walton has given an interesting account of Donne's change of faith, which probably took place about 1592. Before this he must have been writing, for many of the *Divine Poems*, and of these not the worst, are obviously written by a sincere Catholic. The rebound from Catholic ascetism was a severe trial to an ardent nature; it seems that he plunged into various excesses, and that his father's legacy was rapidly squandered. In 1593, however, he had already laid the foundation of his poetic reputation. The first three of his famous *Satires* exist in a MS. dated 1593, and the rest appear to have been composed at various times before 1601. In 1594 he commenced his travels, wandering over Europe, and accompanying the Earl of Essex at the taking of Cadiz, in 1596, and again in the expedition of 1597. It has been thought that he was engaged in military service in Holland in 1596. He did not return to England until he had seen Italy, and was planning an excursion into Palestine, when the difficulty of traveling in the East diverted his thoughts to Spain. In both Italy and Spain he took considerable pains to master the language and existing literature of each country, as the notes to his works testify. It is possible that the fantastic Spanish school of conceits, which takes its name from Gongora, may have affected the style of Donne. Returning to England, he secured the patronage of Sir Thomas Egerton, afterward Lord Chancellor Ellesmere, who appointed him his chief private secretary, and took so much delight in his company and conversation that he made him lodge under his roof. The young poet was five years in Egerton's house, with every prospect of a successful career. In 1611 appeared Donne's first poetical work, *The Anatomy of the World*, of which revised and enlarged editions appeared in 1612, 1621, and 1625. This was but a pamphlet, however. He was urged by Sir Robert Drury to come with his wife and their eleven children to reside in his mansion in Drury Lane; after some demur this offer was accepted, but when, almost immediately after their arrival, Sir Robert desired Donne to travel on the Continent with him, Mrs. Donne, who was in feeble health, strongly objected. It seems almost certain that this objection caused him to compose one of his loveliest poems—

Sweetest Love, I do not go
For weariness of thee.

He permitted himself to be persuaded, however, and accompanied his patron to Paris, where he is said to have had a vision of his wife, with her hair over her shoulders, bearing a dead child in her arms, on the very night that Mrs. Donne, in London, was delivered of a still-born infant. This was in 1612. In 1613, he published *An Elegy on the Death of Prince Henry*. Efforts were made to gain him preferment at court, but James I., who had conceived a high opinion of Donne's theological gifts, refused to give him a single post out of the Church. The poet's scruples were at last removed, and in 1614, he preached in orders before the king at Whitehall. Within a single year fourteen good livings were offered to him; but he refused them all, simply accepting the post of lecturer at Lincoln's Inn. In 1617, the death of his wife was a blow under which his health to far suffered that he was persuaded by his friends to go

abroad, and to spend more than a year in Germany. In 1619, he returned, with the expectation of the deanery of Canterbury. This he did not gain, but in 1620, he was appointed Dean of St. Paul's. To the kindness of the Earl of Dorset he owed the vicarage of St. Dunstan in the West. In 1624, he was elected prolocutor to Convocation, and the same year was attacked by an illness that threatened to prove immediately fatal, but from which he rallied. He continued in feeble health for some years, and preached for the last time before Lent, 1630, an oration which the king called "the Dean's own funeral sermon," and which was printed, under the title of *Death's Duel*, in 1632. On March 31, 1631, he died, having previously wrapped himself in his winding sheet to have his portrait taken. He was buried in St. Paul's Cathedral.

DONOVAN, EDWARD, naturalist, was author of many popular works on natural history and botany. We have searched in vain for any biographical particulars of Donovan—the only facts apparently recorded being that he was a fellow of the Linnean Society, and that he died in London, February 1, 1837.

DORAT, JEAN. See DAURAT.

DORCHESTER (the *Durnovaria* of the Romans), a parliamentary and municipal borough and market town of England, capital of the County of Dorset, situated on an eminence on the right bank of the Frome, eight miles north of Weymouth, and 120 miles from London by the old coach road, but some twenty miles farther by railway.

DORDOGNE, an inland department in the south-east of France, taking its name from the river which traverses its center from east to west, and formed from nearly the whole of Périgord, a part of Agénaïs, and small portions of Limousin and of Angoumois. The chief town is Périgueux. The total area is 3,545 square miles, and the population, 480,142.

DORIA, ANDREA, the famous Genoese admiral, was born at Oneglia, in 1466. He belonged to a noble family, several of whose members, both before and after his time, distinguished themselves in the history of Genoa. Having lost both his parents in his youth, he embraced the military profession, and served in the papal guards and under various princes of Italy. It was not until he was fifty years of age that he entered into the service of Francis I., of France, who gave him the command of his fleet in the Mediterranean. In this position he preserved that spirit of independence which is so natural to a sailor and a republican. When the French attempted to render Savona, long the object of jealousy to Genoa, its rival in trade, Doria remonstrated strongly against the measure; this irritated Francis to such a degree, that early in 1528, he ordered his admiral Barbesieux to sail for Genoa, then in the hands of the French troops, to arrest Doria, and to seize his galleys. Doria, however, retired with all his galleys to a place of safety, and closing with the offers of the emperor, Charles V., returned his commission to Francis, and hoisted the imperial colors. To deliver his country, now weary alike of the French and the imperial yoke, from the dominion of foreigners, was Doria's highest ambition, and the favorable moment had presented itself. Genoa was afflicted with the pestilence, the French garrison was ill paid and greatly reduced, and the inhabitants were sufficiently disposed to second his views. Before the close of the same year (1528), he sailed to the harbor with thirteen galleys, landed five hundred men, and made himself master of the gates and the palace with very little resistance. The French governor, with his feeble garrison, retired to the citadel, but was soon forced to capitulate; upon which the people quickly leveled the citadel with the

ground. It was now in Doria's power to have declared himself the sovereign of his country; but, with a unanimity of which there are few examples, he assembled the people in the court before the palace, disclaiming all preëminence, and recommended to them to settle what form of government they chose to establish. The people, animated by his spirit, forgot their factions, and fixed, with his approval, that republican form of government which, with little variation, subsisted until 1815. His disinterested patriotism won for him the appointment of censor for life and the title "Father and Liberator of his Country." Doria afterward engaged in an expedition against the Turks, from whom he took Coron and Patras. He also cooperated with Charles V., in the reduction of Tunis and Goullette. In 1547 two successive attempts were made against his life by Fieschi, and a Genoese emigrant of the name of Giulio Cibo. He resigned his command in 1556, and died at Genoa, in November, 1560, being then ninety-four years of age.

DORIANS, the name by which one of the two foremost races of the Hellenic or Greek people was commonly known, the other being the Ionic. These two races, if the term may here be rightly used, stand out in marked contrast, as exhibiting different types of character, which have their issue in different modes of thought and forms of government. But when from a consideration of their political and intellectual development we endeavor to work our way backward to the origin and early history of these races, we find ourselves confronted by traditions which show little consistency, or which even exclude each other. Herodotus, in speaking of the Athenians and Spartans as standing at the head severally of the Dorian and Ionian races, states positively that the Ionian was a Pelagic, the Dorian a Hellenic people; that the former had always been stationary, while the latter had many times changed its abode. In the time of Deucalion, he asserts, the Dorians, or rather the tribe or tribes which were afterward to be called Dorians, inhabited Phthotis, by which he probably understands the southern portion of the great Thessalian plain. Afterward, under their eponymus Dorus, they occupied Histieotis, which he describes as the region under Ossa and Olympus. They had thus migrated from the most southerly to the most northerly parts of the great plain which is drained by the Peneius. The next migration was to the highlands of Pindus, the chain which runs down at right angles from the Cambanian range, or the westward extension of Olympus. Here, he says, they were known not as Dorians, but as Macedonians. A later southward migration brought them into Dryopis, whence they made their way into the Peloponnesus, and it would seem were then only first known as Dorians (Herod. i. 56).

DORIS, the name which, in the time of Herodotus and later writers, designated the little territory which lay to the southwest of the Malian Gulf, and between the ranges of Ceta and Parnassus, bounded by the lands of the Phocians on the east, of the Etolians on the west, of the Malians and Epicnemidian Locrians on the north, and of the Ozolian Locrians on the south, the whole being barely thirty miles in length by ten at its greatest width. The political insignificance of Doris is to be ascribed to the fact that it had no seaboard. The only other Greek communities in like plight were those of Arcadia or the Peloponnesian highlands, and both Doris and Arcadia remained far in the rear of Hellenic development generally.

DORKING, a market town of West Surrey, England, situated on a small brook, a tributary of the Mole, twenty-nine miles S. of London by rail.

D'ORLEANS, LOUIS (1542-1629), a minor French

poet and political pamphleteer, and a prominent partisan of the Catholic League.

DORMOUSE, the common name of a family of small rodents (*Myoxidae*), generally regarded as intermediate between mice and squirrels. It contains twelve species, distributed over the temperate parts of the great Palearctic region from Britain to Japan, and throughout the greater portion of Africa.

DORNBIRN, or **DORNBÜHREN**, a straggling but well-built township of Austria, in Tyrol, about six miles south of Bregenz, situated on the right bank of a stream known as the Dornbirm Ach, which flows into the Lake of Constance. It has upward of 8,000 inhabitants, ranks as the principal market-place in the Vorarlberg, and carries on iron and copper smelting and the manufacture of cotton cloth and worked muslin.

DOROGOBUSH, a town of Russia in Europe, in the government of Smolensk, about fifty-five miles east of the city of that name, on the banks of the Dnieper.

DOROGOI, or **DOROHOI**, a town of Roumania, in the northern part of Moldavia, about eighty miles northwest of Jassy, on the Shiska, a tributary of the Pruth.

DOROTHEUS, a professor of jurisprudence in the law school of Berytus in Syria, and one of the three commissioners appointed by the Emperor Justinian to draw up a book of Institutes, after the model of the *Institutes* of Gaius, which should serve as an introduction to the *Digest* already completed. His colleagues were Tribonian and Theophilus, and their work was accomplished in 533.

DORP, a town of Prussia, in the government of Düsseldorf, seventeen miles northeast of Cologne, which, like Barmen and many other towns in the valley of the Wupper, has since 1849 rapidly grown into importance as a center of manufacturing industry.

DORPAT, in German frequently *Dörpt*, in Russian *Derpt* or *Yurief*, in Esthonian *Tartoma*, a city of Russia in Europe, in the government of Livonia, situated on both banks of the Embach, 157 miles northeast of Riga. Owing to the great conflagration of 1777, the actual town is almost entirely of modern erection; and its fortifications have been transformed into promenades.

This university, which renders the town the great intellectual center of Livonia, preserves the Teutonic traditions of its earlier days, and is much more German than Russian in its culture. It was founded by Gustavus Adolphus in 1632; but in 1699 teachers and students removed to Pernau on the advance of the Russians, and on the occupation of the country by Peter the Great again took flight to Sweden. In spite of the stipulation of the treaty of 1710, and the efforts of the Livonian nobles, it was not till 1802 that its restoration was effected under the patronage of Alexander I.; but since that date its history has been one of considerable prosperity. It possesses forty-two ordinary professors, a total teaching staff of seventy-three members, and upward of 800 students. The astronomical department is especially famous, owing partly to the labors of Otto Struve, and partly to its possession of Fraunhofer's great refracting telescope, presented by the Emperor Alexander I.

D'ORSAY, ALFRED GUILLAUME GABRIEL, COUNT (1798-1852), a celebrated leader of society in Paris and London, who added to the attractions of dandyism those of high intellectual and artistic gifts, was born at Paris.

DORSET, an English county, situated on the southwestern coast. In British times, previous to the landing of Cæsar, it was inhabited by a tribe which Ptolemy calls the Durotriges, and which, upon no good authority, but not without probability, has been identified with the Morini, the occupants of a part of the opposite coast (*extremi hominum Morini*, *Æn.* viii. 727), the two appellations being apparently of similar import, and refer-

ring to their location on the sea-shore. Under the Romans this county constituted a portion of *Britannia Prima*; and the Saxons called it Dornsæta, or Dorsæta (a word involving the same root, Dwr, water), and included it in the kingdom of Wessex.

DORSET, THOMAS SACKVILLE, LORD BUCKHURST, FIRST EARL OF (1536-1608), was born at Buckhurst in the parish of Withyham in Sussex. In 1557 he entered public life as a member of Parliament for Westmoreland. In the following year he sat for East Grinstead in Sussex, and the record of his activity is still to be found in the Journals of the House of Commons. Queen Elizabeth, who had just come to the throne, was attracted by the handsome person, high culture, and evident ability of her young poet-kinsman, who was accordingly, to quote his own words, "selected to a continual private attendance upon her own person," which did not, however, prevent him from appearing again in the Parliament of 1563, as member for Aylesbury in Buckinghamshire. A visit to the Continent in 1565 was interrupted by an unexplained imprisonment at Rome, and terminated by the news of his father's death, which took place on April 21, 1566. On his return he was knighted in the queen's presence, and obtained the title of Lord Buckhurst, by which he continued to be known through the most of his life. Apartments were provided for him in the queen's palace at Shene, where his mother was in charge; but the simplicity of his mode of life is shown by the fact that, when, in 1568, he had to entertain Odet de Coligni, Cardinal de Châtillon, at the queen's command, he failed to satisfy the luxurious desires of his guest, and thus fell under her majesty's displeasure. In 1571 he was sent to France to congratulate Charles IX. on his marriage with Elizabeth of Austria; in 1572 he was one of the peers who tried Thomas Howard, Earl of Norfolk; and in 1586 he was employed to convey to Queen Mary of Scotland the sentence of death. A more difficult task was found for him in 1587; as ambassador to The Hague he was expected "to expostulate in favor of peace with a people who knew that their existence depended on war, to reconcile those to delay who felt that delay was death, and to heal animosities between men who were enemies from their cradles to their graves." But his expostulations with the queen on her parsimonious policy, and his independent conduct toward the royal favorite, Leicester, procured him, on his return to England, instead of approbation and reward for his services, an order confining him to his house for nine or ten months in token of her majesty's displeasure. On the death of the earl, however, he was again received into favor; in 1588 he was presented with the Order of the Garter; in 1591 he was elected chancellor of the University of Oxford, his claims having been supported by a royal letter; and, in 1599, on the death of Lord Burghley, he succeeded to the office of Lord High Treasurer of England. In the following year he had to pronounce sentence as High Steward on the Earl of Essex, who had been his rival for the chancellorship and his opponent in politics. The change of the dynasty which took place in 1603 left his position unimpaired; his office of Lord Treasurer was confirmed to him by King James, and on March 13, 1604, he was created Earl of Dorset. He died suddenly on April 10, 1608, while sitting at the council table in Whitehall, and left his earldom to his son, Robert Sackville.

DORSET, CHARLES SACKVILLE, SIXTH EARL OF (1637-1706). Dorset keeps his place in the list of English poets in virtue of a few lyrical and satirical pieces, which, though extravagantly praised by his contemporaries, and, even according to Macaulay, displaying the easy vigor of Suckling and wit as splendid as that of Butler, are after all of no great moment in themselves,

and only suggestive of what in happier circumstances the writer might have done. As a patron of literature, however, Dorset stands unrivaled—judicious, impartial, and munificent. To him Prior was indebted for his education, Montague for promotion, and Wycherly for support against the disfavor of the public. Though compelled as lord chamberlain to deprive Dryden of his official laurel, he took care to make good from his private purse the pecuniary loss involved in the dismissal.

DORT, or DORDRECHT, an important commercial city of Holland, at the head of a district in the province of South Holland, ten miles southeast of Rotterdam, on the railway between the city and Breda.

DORT, SYNOD OF, an assembly of the Reformed Dutch Church, with deputies from France, Switzerland, the Palatinate, Scotland, and England, called to decide the theological differences existing between the Arminians (or Remonstrants) and the Calvinists (or Counter Remonstrants), was held at Dort or Dordrecht in the years 1618 and 1619. The synod was concluded on April 29, 1619, by a magnificent banquet given by the chief magistrate of Dort.

DORTMUND, a town of Germany, capital of a circle of the same name, in the district of Arnsberg, and Prussian province of Westphalia, is situated on the Emscher.

DORY or JOHN DORY, an Acantopterygian fish belonging to the family *Scombridae*, held in such esteem by the ancient Greeks that they called it Zeus, after their principal divinity.

DOTIS. See **TOTIS**.

DOUAI, or DOUAY, an ancient and once strongly fortified town of France, at the head of an arrondissement, in the department of Nord, situated on the Scarpe, at a railway junction eighteen miles south of Lille. Its triple line of fortifications, partly the work of Vauban and partly of more modern structure, includes a considerably larger space than is requisite for the area of its buildings; the streets are consequently spacious, and the number and size of the gardens unusually large. Population, 22,000.

DOUARNENEZ, town and watering place of France, in the department of Finistère, to the south of a bay of the same name. Its sardine fishery, which is carried on from the end of June to the beginning of December, gives occupation to about 800 boats, and between 3,000 and 4,000 men; the average number of sardines caught each year is 360,000,000, worth 9,000,000 francs.

DOUBLEDAY, THOMAS, an English author in political and general literature. He early adopted the views of his friend William Cobbett, and was active in promoting the agitation which resulted in the passing of the Reform Act of 1832. As secretary of the Northern Political Union of Whigs and Radicals, he took a prominent part in forwarding the interests of Lord Grey and the reforming party. In 1858-59 he was a member of the council of the Northern Reform Union; and to the last he was a keen observer of political events.

DOUBS, an eastern frontier department of France, so named from its chief river, is formed of the ancient German principality of Montbéliar (Mömpelgard), and of part of the province of Franche-Comté. It is bounded E.S.E. by Switzerland, N. by the territory of Belfort and by Haute-Saône, and N.W. and S.W. by Haute-Saône and Jura.

DOUCE, FRANCIS (1762-1834), an English antiquarian.

DOUGLAS, the commercial capital of the Isle of Man, and a favorite watering-place, stands on a fine semicircular bay on the east coast of the island, at the junction of the Dhoo and Glass.

DOUGLAS, GAWAIN or GAVIN (c. 1474-1513), Bishop of Dunkeld, and the ancient classical poet of Scotland, was the third son of Archibald, Earl of Angus, known in Scottish history as "Bell-the-Cat." Being intended for the church, Douglas studied at the university of St. Andrews, where his name appears in the lists of alumni between 1489 and 1494. In 1501 he was elected dean or provost of the collegiate church of St. Giles', Edinburgh, an office of dignity and emolument.

In the battle of Flodden (1513), when James IV. and many of the Scottish nobility and ecclesiastics were killed, the Earl of Angus lost his two eldest sons, which so affected him that he retired to St. Mains, a religious house in Galloway, where he soon after died. He was succeeded by his grandson, Archibald, a handsome young nobleman, who attracted the attention of the widowed Queen Margaret, sister of Henry VIII. of England, and they were married within eleven months after the death of the king. While this precipitate connection incensed the nobility and caused much jealousy of the Douglas family, it seemed to open up a way for the preferment of Gavin Douglas. By the influence of the queen, Douglas was "postulated" by the Pope to the abbacy of Aberbrothock, or Arbroath. He met with such opposition, however, from a rival claimant, that his appointment was never completed, and he was unable to obtain his abbacy. Douglas was next recommended by the queen to the Pope for the archbishopric of St. Andrews, then vacant; and, relying upon the validity of this appointment, he attempted by force to obtain possession of the castle of St. Andrews. He was, however, unsuccessful, and ultimately was passed over in favor of Andrew Forman. At length, by the united influence of the queen and the Pope, he was nominated for the bishopric of Dunkeld, which shortly afterward became vacant. The people were so indignant at the marriage of the queen with Angus that the Parliament deprived her of the regency of the kingdom and the charge of the young King James V., and appointed the Duke of Albany to be regent in her room. One of the first acts of the duke, who came from France to assume the reins of government, was to bring Douglas to trial for intriguing for ecclesiastical benefices with the queen and the Pope without the sanction of Parliament. He was found guilty, and put in prison in what he calls the "wyndy and richt vpleisant castell and royk of Edinburgh," where he continued for about a year. This harsh step of the Duke of Albany seems to have brought about a feeling of sympathy for Douglas. He was at length set at liberty, and, to make some amends, the duke permitted him to be consecrated Bishop of Dunkeld.

The marriage of the queen with the Earl of Angus proved an unhappy one; and, in consequence of his ill-treatment of her, the queen separated from her husband and joined with the regent against the Douglasses. Angus fled to the borders for a time; and in 1521 his uncle Gavin was deprived of his bishopric. The bishop then took shelter at the court of Henry VIII., but in 1522 he died of the plague at London, in the forty-eighth year of his age. His remains were interred in the Hospital Church of the Savoy.

The works of Bishop Douglas, though not numerous, are important. They consist of (1) *The Palace of Honour*, a poem written in 1501—an allegorical description of many gorgeous cavalcades of famous persons trooping to a magnificent palace somewhat like Chaucer's Temple of Fame, in the execution of which Douglas has displayed much originality of treatment; (2) Another allegorical poem, called *King Hart*, or the heart of man, descriptive of the progress of life from

youth to age; (3) A short poem called *Conscience*; and (4) *A Translation of the Æneid of Virgil*, with the supplemental book of Maphæus Vegius.

This *Translation of Virgil*, by which Douglas is best known, is a work of which Scotland will always be proud, as it was the first metrical translation of a classical author made in Britain, and the precursor of many others.

DOUGLAS, STEPHEN ARNOLD, an American statesman, was born at Brendon, in the State of Vermont, on April 23, 1813. His father, a physician, died when he was still an infant, and in his youth he had to struggle with poverty. He was apprenticed to a cabinet-maker, but his health failed, and he quitted the employment after a year and a half. He next studied for three years at the Academy of Canandaigua, giving special attention in the latter part of his course to law. In 1833 he went west to seek his fortune, and settled in Jacksonville, Illinois. Here he supported himself for a few months by acting as an auctioneer's clerk and keeping a school. Called to the bar in March, 1834, he quickly obtained a large and lucrative practice, and so early as the following year was elected Attorney-General of the State. In December, 1835, he was elected a member of the Legislature, in 1837 he was appointed registrar of the land office at Springfield, and in December, 1840, he became Secretary of State of Illinois from 1841 till November, 1843, when he resigned the office in order to stand a candidate for Congress in the Democratic interest. In 1837 he had failed to secure his return by a minority of five in a total vote of 36,000; on this occasion he was successful, being elected by a majority of 400. He took an active share in the Oregon controversy, asserting his unalterable determination not to "yield up one inch" of the territory to Great Britain, and advocating its occupation by a military force. He was also a leading promoter of the measures which resulted in the annexation of Texas and in the Mexican War. Being chairman of the Territorial Committee at first in Congress and then in the Senate, to which he was elected in March, 1847, it fell to him to introduce the bills for admitting Iowa, Wisconsin, Minnesota, California, and Oregon into the Union, and for organizing the Territories of Minnesota, Oregon, New Mexico, Utah, Washington, Kansas, and Nebraska. On the keenly-disputed question of the permission of slavery in the Territories, Douglas advocated, if he was not the first to promulgate, what came to be known as the "popular sovereignty doctrine," by which each territory was to be left to decide the matter for itself in the same manner as a State. The bill for organizing the Territories of Kansas and Nebraska, which Douglas reported in January, 1854, caused great popular excitement, as it repealed the Missouri Compromise, and declared the people of "any State or Territory" "free to form and regulate their domestic institutions in their own way, subject only to the Constitution of the United States." There was great indignation throughout the free States; and Douglas, as the chief promoter of the measure, was hanged or burned in effigy in many places. In 1852, and again in 1856, he was a candidate for the presidency in the National Democratic Convention, and though on both occasions he was unsuccessful, he received strong support. In 1857 he distinguished himself by his vigorous opposition to the admission of Kansas into the Union under the Lecompton Constitution, which he maintained to be fraudulent. In the following year he was engaged in a close and very exciting contest for the senatorship with Abraham Lincoln, who was the Republican candidate. The popular vote was against him, but in the legislative vote he secured his return by 54 to 46.

Douglas paid great attention to the local affairs of Illinois, and he was the chief promoter of the Illinois Central Railroad. In 1860 he was again one of the Democratic candidates for the presidency, and received a large popular vote, but he was very feebly supported in the electoral college. On the outbreak of the civil war he denounced secession as criminal, and was one of the strongest advocates of maintaining the integrity of the Union at all hazards. He delivered frequent addresses in this sense after the adjournment of Congress, and during his last illness he dictated a letter for publication, urging all patriotic men to sustain the Union and the Constitution. He died at Chicago, on June 3, 1861.

DOUR, a town of Belgium, in the province of Hainault, nine miles southwest of Mons, to the right of the railway from that city to Valenciennes.

DOUSA, JANUS (JAN VAN DER DOES) (1545-1604), a distinguished Dutch statesman, historian, poet and philologist, the heroic defender of Leyden, was born at Noordwyck, in the province of Holland, December 6, 1545. Left an orphan at the age of five, he was brought up by his grandfather, after whose death an uncle took charge of him. He began his studies at Lier, in Brabant, became a pupil of Henry Junius at Delft, in 1560, and thence passed successively to Louvain, Douai, and Paris. Here he studied Greek under Peter Dorat, professor at the Collège Royal, and became acquainted with the Chancellor L'Hôpital, Turnebus, Ronsard, and other eminent men. On his return to Holland in 1565, he married. His name stands in the list of nobles who in that year formed a league against Philip II.; but he does not appear to have taken any active part in public affairs till 1572, when he was sent as head of an embassy to England. Two years later he was intrusted with the government and defense of Leyden, then besieged by the Spaniards; and in this arduous post he displayed rare intelligence, fortitude, and practical wisdom. On the foundation of the University of Leyden by William I. of Orange, Dousa was appointed first curator, and this office he held for nearly thirty years. Through his friendships with foreign scholars he drew to Leyden many illustrious teachers and professors. After the assassination of William I., in 1584, Dousa went privately to England to seek the aid of Queen Elizabeth, and in the following year he was sent formally for the same purpose. About the same time he was appointed keeper of the Dutch archives, and the opportunities thus afforded him of literary and historical research he turned to good account. In 1591, being named a member of the States-General, he removed to The Hague. Heavy blows fell upon him in the deaths of his eldest son in 1597, and of his second son three years later. A bitter trial still was the misconduct of another son. Dousa was author of several volumes of Latin verse and of philological notes on Horace, Catullus, Tibullus, Petronius Arbiter, and Plautus. But his principal work is the *Annals of Holland*, which first appeared in a metrical form in 1599, and was published in prose, under the title of *Batavia Hollandique Annales*, in 1601. This work had been begun by his eldest son. Dousa also took part, as editor or contributor, in various other publications. He died at Noordwyck, October 8, 1604, and was interred at The Hague; but no monument was erected to his memory until 1792, when one of his descendants placed a tomb in his honor in the church of Noordwyck.

DOUVILLE, JEAN BAPTISTE (1794—c. 1837), a French traveler, born at Hambye, in the department of Manche, whose asserted discoveries in Africa have in large measure been relegated to the region of romance. At an early period his imagination seems to have been

fired by narratives of travel and adventure; and accordingly, when he fell heir to a wealthy relation, he at once proceeded to gratify his desire for personal acquaintance with foreign lands. He certainly wandered far and wide; and, according to his own profession, he visited India, Kashmir, Khorassan, Persia, Asia Minor, and many parts of Europe. After spending some time in Paris, and being admitted a member of the Société de Géographie, he proceeded in 1826 to Brazil, with the intention apparently of carrying on scientific explorations; from this purpose, however, he was diverted by the political circumstances of the country; and to replenish his funds he started business at Montevideo, in partnership with a M. Labossière. Toward the close of the following year, probably in October, after a short residence at Rio Janeiro, he left Brazil for the Portuguese possessions on the west coast of Africa, where his presence in March, 1828, is proved by the mention made of him in certain letters of Castillo Branco, the governor-general of Loanda. In May, 1831, he reappeared in France, claiming to have pushed his explorations into the very heart of Africa, as far as the 27th degree of longitude east of Greenwich, or, in other words, into what is now known as the great equatorial lake region. His story was readily accepted by the Société de Géographie at Paris, which hastened to recognize his services by assigning him the great gold medal, and appointing him their secretary for the year 1832. On the publication of his narrative — *Voyage au Congo et dans l'Intérieur de l'Afrique Équinoxiale* — which occupied four large volumes, and was accompanied by an elaborate atlas, the public enthusiasm might well run high. In company with his wife (a sister of his old Montevidean partner), and attended by about 400 native porters, the happy traveler had advanced from kingdom to kingdom rather like a monarch making a progress through his tributary states, distributing largesses and receiving homage, than like a humble adventurer defraying his expenses from his private purse. Everything went smooth for a time; the interior of Africa was described in text books and depicted in maps according to the discoveries of Douville; but in the August number of the *Foreign Quarterly Review*, for 1832, the most sweeping charges of ignorance and fraud were launched against the author, and this attack was followed up in the *Revue des Deux Mondes*, for November, by Thomas Lacordaire, who asserted that, during part of the time which he claimed to have spent in Africa, Douville had been a familiar object in the streets of Rio Janeiro. The tide of popular favor turned; and, in spite of the explanations furnished by Douville in *Ma Défense*, 1832, and *Trente Mois de ma Vie, ou Quinze Mois Avant et Quinze Mois après mon Voyage au Congo*, 1833, the general decision was openly against him. Mlle. Audrun, a lady to whom he was about to be married, committed suicide from grief at the disgrace; and, after vainly attempting to obtain satisfaction from Lacordaire by duel, the poor adventurer himself withdrew in 1833, to Brazil, and proceeded to make explorations in the valley of the Amazon. According to Dr. Gardner, in his *Travels in the Interior of Brazil*, he was murdered in 1837, on the banks of the São Francisco for charging too high for his medical assistance. His Brazilian manuscripts fell into the hands of M. S. Rang, by whom they were transmitted to M. Ferdinand Denis. While modern exploration has done nothing to support the wider pretensions of Douville, no less an authority than Captain Burton asserts that his descriptions of the country of the Congo are life-like and picturesque; that his observations on the anthropology, ceremonies, customs, and maladies of the people are remarkably accurate; and that even the native words

inserted into the text of his narrative "are for the most part given with unusual correctness."

DOUW, or Dow, GERHARD (1613–1680), a celebrated Flemish painter, was born at Leyden on April 7, 1613. At the age of fifteen he became a pupil of Rembrandt, with whom he continued for three years. From the great master of the Flemish school he acquired his skill in coloring, and in the more subtle effects of chiaroscuro; and the style of Rembrandt is reflected in several of his earlier pictures, notably in a portrait of himself at the age of twenty-two, in the Bridgewater Gallery, and in the *Blind Tobit Going to Meet His Son*, at Wardour Castle. At a comparatively early point in his career, however, he had formed a manner of his own distinct from, and indeed in some respects antagonistic to, that of his master. Gifted with unusual clearness of vision and precision of manipulation, he cultivated a minute and elaborate style of treatment; and probably few painters ever spent more time and pains on all the details of their pictures down to the most trivial. He is said to have spent five days in painting a hand; and his work was so fine that he found it necessary to manufacture his own brushes. Notwithstanding the minuteness of his touch, however, the general effect was harmonious and free from stiffness, and his color was always admirably fresh and transparent. He was fond of representing subjects in lantern or candle light, the effects of which he reproduced with a fidelity and skill which no other master has equalled. He frequently painted by the aid of a concave mirror, and to obtain exactness looked at his subject through a frame crossed with squares of silk thread. His practice as a portrait painter, which was at first considerable, gradually declined, sitters being unwilling to give him the time that he deemed necessary. His pictures were always small in size, and represented chiefly subjects in still life. Upward of 200 are attributed to him, and specimens are to be found in most of the great public collections of Europe. His *chef d'œuvre* is generally considered to be the *Woman sick of the Dropsy*, in the Louvre. The *Evening School*, in the Amsterdam Gallery, is an example of the candle-light scenes in which he excelled. In the National Gallery favorable specimens are to be seen in the *Poulterer's Shop* and a portrait of himself. Douw's pictures brought high prices, and it is said that President Van Spiring of The Hague paid him 1,000 florins a year simply for the right of preemption. Douw died in 1680. His most celebrated pupil was Francis Mieris.

DOVE, a name which seems to be most commonly applied to the smaller members of the group of birds by ornithologists usually called Pigeons (*Columbe*): but no sharp distinction can be drawn between Pigeons and Doves, and in general literature the two words are used almost indifferently, while no one species can be pointed out to which the word Dove, taken alone, seems to be absolutely proper.

DOVER (the ancient Dubris), principal cinque port of England, is situated close to the South Foreland, seventy-two miles from London, in a main valley of the chalk hills corresponding with the opposite cliffs between Calais and Boulogne. Its dominant object is the castle, on the east heights. Within its walls stands the Roman pharos; the Romano-British fortress church, remaining not only *in situ*, but (excepting roof) integrally *in statu quo*, forming a primitive Christian relic, unique in Christendom; some remains of the Saxon fort; and the massive keep and subsidiary defenses of Norman building. These ancient works provide for a garrison of 758; but they are now covered by the superior site of Fort Burgoyne, a position of great strength for 221 men. The western heights, where is still the foundation of a con-

sort Roman pharos, form a circuit of elaborate fortifications, with provision for 3,010 troops.

Of old Dover, within its walls and gates, but little remains, except a remnant of the Saxon collegiate church of the canons of St. Martin, and the parish church of St. Mary the Virgin—rebuilt and enlarged in 1843–44, but preserving the three bays of the Anglo-Saxon church, with its western marthex, on which had been superimposed the Norman tower, still presenting its rich front to the street. A later Norman church stands under the Castle Hill, which has been partially restored, but its parochial status transferred to the new parish church of St. James. The area of the borough is 1,262 acres. Population, 28,590.

DOVER, a city of the United States, capital of Strafford County, New Hampshire, situated on the Cochecho, a tributary of the Piscataqua, at a railroad junction twelve miles northwest of Portsmouth. It has eight churches, a high school, a city hall, and a public library, and the water-power furnished by the falls of the Cochecho, encourages its industrial activity, the principal results of which are prints and other cotton goods, woolens, leather, boots and shoes, hats, oil-cloth, sandpaper, iron and brass wares, and carriages. The town was founded in 1623, and received its city charter in 1855.

DOVER, a town of the United States, the capital of Delaware, on St. Jones River, nine miles inland from Delaware Bay, and forty-eight miles south of Wilmington. It is a regular brick-built place, with broad, well-shaded streets, has a State house, a court-house, six churches, an academy, and several other public buildings, and carries on a brisk trade in preserved fruits.

DOVER, GEORGE JAMES WELBORE AGAR ELLIS, BARON (1797–1833). Lord Dover's literary works were chiefly historical, and included *The True History of the Iron Mask, Extracted from Documents in the French Archives* (1826), *Historical Inquiries Respecting the Character of Clarendon* (1827), and a *Life of Frederick the Great* (1831).

DOW, LORENZO (1777–1834), an American preacher, noted for his eccentricities of dress and manner, was born at Coventry, Connecticut, October 16, 1777. He received but a limited education, and was much troubled in his youth by religious perplexities; but he ultimately joined the Methodists, and was appointed a preacher (1799). The same year, however, his official connection with that body ceased, and he went over to preach to the Catholics of Ireland. He attracted great crowds to see and hear him, and was often persecuted as well as admired. He also visited England, introduced the system of camp meetings, and thus led the way to the formation of the Primitive Methodist Society. These visits were repeated in 1805. Dow's enthusiasm sustained him through the incessant labors of more than thirty years, during which he preached in almost all parts of the United States. His later efforts were chiefly directed against the Jesuits. His *Polemical Works* were published in 1814. Among his other writings are *The Stranger in Charleston, or the Trial and Confession of Lorenzo Dow* (1822), *A Short Account of a Long Travel* (1823) and the *History of a Cosmopolite*. He died February 2, 1834.

DOWLETABAD, a city and fortress of India, in the northwestern corner of the Nizam's Dominions, near one of the right hand tributaries of the Godavary. Though still the center of an administrative district, the city has sunk into comparative insignificance since the rise of Aurangabad, about ten miles to the east; but the fortress remains, from its natural position, one of the most remarkable in the country.

DOWN, a maritime county of Ireland, in the prov-

ince of Ulster, occupying the most easterly part of the island, is bounded on the north by the County Antrim and Belfast Lough, east and south by the Irish Sea, and west by the County Armagh.

DOWNPATRICK, a municipal and parliamentary borough and market-town of Ireland, capital of the County of Down, eighteen miles southeast of Belfast, and seventy-four north-northeast of Dublin.

DOXOLOGY, a hymn in praise of the Almighty. The name is often applied to the Trisagion, or "Holy, Holy, Holy," the scriptural basis is found in Isaiah vi, 3; to the Hallelujah of several of the Psalms and of Rev. xix; and to the last clause of the Lord's Prayer according to Saint Matthew, which critics are generally agreed in regarding as an interpolation. It is used, however, more definitely in the designation of two hymns distinguished by liturgical writers as the Greater and Lesser Doxologies. The origin and history of these it is impossible to trace fully. The germ of both is to be found in the Gospels; the first words of the Greater Doxology, or *Gloria in Excelsis*, being taken from Luke ii, 14, and the form of the Lesser Doxology, or *Gloria Patri*, having been in all probability first suggested by Matt. xxviii, 19. The Greater Doxology, in a form approximating to that of the English Prayer Book, is given in the *Apostolical Constitutions* (vii, 47). This is the earliest record of it, unless, indeed, the *Apostolical Constitutions* be taken to be of a later date than the Alexandrine Codex, where the hymn also occurs. Alcuin attributes the authorship of the Latin form—the *Gloria in Excelsis*—to St. Hilary of Poitiers (died 368), but this is at best only a plausible conjecture.

DOYEN, GABRIEL FRANÇOIS (1726–1806), an eminent French painter, was born at Paris. Among his greatest works are reckoned—the *Miracle des Ardents*, painted for the church of St. Geneviève, at St. Roch (1773); the *Triumph of Thetis*, for the chapel of the Invalides; and the *Death of St. Louis*, for the chapel of the Military School. Soon after the beginning of the Revolution he accepted the invitation of Catherine II., and settled at St. Petersburg, where he was loaded with honors and rewards.

DRACO, a celebrated Athenian legislator who flourished in the seventh century B.C. By a strange irony of fate his name has passed into a proverb for an inexorable lawgiver, whose laws were written with blood and not with ink. Modern Greek historians, such as Thirlwall, Grote, and Curtius, have clearly shown that such a character is an utter perversion of fact. Of Draco's famous code not a single line remains, and all we know of it is derived from a few scattered notices occurring mostly in late Greek authors. Of these the most important is a passage in Plutarch's life of Solon. After stating that Solon abolished the whole of Draco's legislation, except in cases of murder, on account of its harshness and severity, Plutarch adds, by way of commentary—"Because for nearly all crimes there was the same penalty of death." At Athens, as at Rome, the kings were the depositaries and administrators of law. With the extinction of the regal power this prerogative passed into the hands of the aristocracy as represented by the archons. It was in the nature of things that such a monopoly should be abused. The remedy for this abuse which the commons sought was a published code of laws. It was attained at Rome by the law of the Twelve Tables, and at Athens by the code of Draco, 621 B.C. In both cases the promulgated law was merely an enunciation of existing customs. Such was the work of Draco. Of his life we know absolutely nothing with the exception of a most improbable story related by Suidas. In Suidas' *Lexicon*, under the word "Draco," we are told that he composed his code

in his old age, and was smothered to death in the theater at Ægina with the caps, chitons, and cloaks which were thrown at him by an enthusiastic audience. The only value of the story is that it may show the feelings with which he was regarded by the commons of his own day.

DRAGON (sharp-sighted), the name given by the ancients to a fabulous monster represented by them as a huge winged lizard or serpent. They regarded it as the enemy of mankind, and its overthrow is made to figure among the greatest exploits of the gods and heroes of heathen mythology. A dragon watched the garden of the Hesperides, and its destruction formed one of the seven labors of Hercules. Its existence does not seem to have been called in question by the older naturalists, figures of the dragon appearing in the works of Gesner and Aldrovandi, and even specimens of the monster—evidently formed artificially of portions of various animals—having been exhibited. The only creatures ever known to have existed, at all comparable to this imaginary monster, are the Pterodactyls, remains of which are found in the Liassic and Oolitic formations. These were huge reptiles, provided with true wings somewhat resembling those of bats. The name "dragon" is now applied to a highly interesting, but very harmless, group of small flying lizards forming the genus *Draco*, belonging to the *Agamidae*, a family of Saurian Reptiles.

DRAGON-FLY, the popular name applied to the members of a remarkable group of insects which formed the genus *Libellula* of Linnaeus and the ancient authors. In some parts of the United States they appear to be known as "Devil's Darning Needles," and in many parts of England are termed "Horse-stingers."

DRAGON'S BLOOD, a name applied to the resins obtained from several species of plants. *Calamus Draco* (Willd.), one of the Rotang or Rattan Palms, which produces much of the dragon's blood of commerce, is a native of Further India and the Eastern Archipelago.

DRAGÜGNAN, the chief town of the department of Var, in France, and of an arrondissement of the same name, on the River Pis, a branch of the Nartuby, lies at the foot of the wooded height of Malmont.

DRAINAGE. See AGRICULTURE, ARCHITECTURE, BUILDING, and SEWAGE.

DRAKE, SIR FRANCIS, a celebrated English admiral, was born near Tavistock, Devonshire, about 1545 according to most authorities, but Barrow, in his life, says the date may have been as early as 1539. At twenty he made a voyage to Guinea; and at twenty-two he was made captain of the *Judith*. In that capacity he was in the harbor of San Juan de Ulloa, in the Gulf of Mexico, where he behaved most gallantly in the actions under Sir John Hawkins, and returned with him to England, having acquired great reputation, though with the loss of all the money which he had embarked in the expedition. In 1570 he obtained a regular privateering commission from Queen Elizabeth, the powers of which he immediately exercised in a cruise in the Spanish Main. Having next projected an attack against the Spaniards in the West Indies to indemnify himself for his former losses, he set sail in 1572, with two small ships named the *Pasha* and the *Swan*. He was afterward joined by another vessel; and with this small squadron he took and plundered the Spanish town of Nombre de Dios. With his men he penetrated across the Isthmus of Panama, and committed great havoc among the Spanish shipping. From the top of a tree which he climbed while on the isthmus he obtained his first view of the Pacific, and resolved "to sail an English ship in these seas." In these expeditions he was much assisted by a tribe of Indians, who were then engaged in a desultory warfare with the Spaniards. Hav-

ing embarked his men and filled his ships with plunder, he bore away for England, and arrived at Plymouth on August 9, 1573.

His success and honorable demeanor in this expedition gained him high reputation; and the use which he made of his riches served to raise him still higher in popular esteem. Having fitted out three frigates at his own expense, he sailed with them to Ireland, and rendered effective service as a volunteer, under Walter, Earl of Essex, the father of the famous but unfortunate earl. After the death of his patron he returned to England, where Sir Christopher Hatton introduced him to Queen Elizabeth, and procured him a favorable reception at court. In this way, he acquired the means of undertaking that grand expedition which has immortalized his name. The first proposal he made was to undertake a voyage into the South Seas through the Straits of Magellan, which no Englishman had hitherto ever attempted. This project having been well received at court, the queen furnished him with means; and his own fame quickly drew together a sufficient force. The fleet with which he sailed on this enterprise consisted of only five small vessels, and their united crews mustered only 166 men. Having sailed on December 13, 1577, he on the 25th made the coast of Barbary, and on the 29th, Cape Verd. He reached the coast of Brazil, on April 5th, and entered the Rio de la Plata, where he parted company with two of his ships; but having met them again, and taken out their provisions, he turn them adrift. On May 29th he entered the port of St. Julian's, where he continued two months for the sake of laying in a stock of provisions. On August 20th he entered the Straits of Magellan, and on September 25th passed them, having then only his own ship. On November 25th he arrived at Macao, which he had appointed as the place of rendezvous in the event of his ships being separated; but Captain Winter, his vice-admiral, had repossessed the straits and returned to England. He thence continued his voyage along the coast of Chili and Peru, taking all opportunities of seizing Spanish ships, and attacking them on shore, till his men were satiated with plunder; and then coasted along the shores of America, as far as 48° north latitude, in an unsuccessful endeavor to discover a passage into the Atlantic. Having landed, however, he named the country New Albion, and took possession of it in the name of Queen Elizabeth. Having careened his ship, he sailed thence on September 29, 1579, for the Moluccas. On November 4th he got sight of those islands, and, arriving at Ternate, was extremely well received by the king. On December 10th he made the Celebes, where his ship unfortunately struck upon a rock, but was taken off without much damage. On March 16th he arrived at Java, whence he intended to have directed his course to Malacca; but he found himself obliged to alter his purpose, and to think of returning home. On March 25, 1580, he again set sail; and on June 15th, he doubled the Cape of Good Hope, having then on board only fifty-seven men and three casks of water. He passed the line on July 12th, and on the 16th reached the coast of Guinea, where he watered. On September 11th, he made the Island of Terceira, and on November 3d, he entered the harbor of Plymouth. This voyage round the world, the first accomplished by an Englishman, was thus performed in two years and about ten months.

In 1585, open hostilities having commenced with Spain, Drake sailed with a fleet to the West Indies, and took the cities of St. Jago, St. Domingo, Cartagena, and St. Augustine. In 1587 he went to Lisbon with a fleet of thirty sail; and having received intelligence of a great fleet being assembled in the Bay of Cadiz, and

destined to form part of the Armada, he with great courage entered the port on April 19th, and there burnt upward of 10,000 tons of shipping — a feat which he afterward jocosely called "singeing the King of Spain's beard." In 1588, when the Spanish Armada was approaching England, Sir Francis Drake was appointed Vice-Admiral under Lord Howard, and made prize of a very large galleon, commanded by Don Pedro de Valdez, who was reputed the projector of the invasion, and who struck at once on learning his adversary's name.

In 1589, Drake commanded the fleet sent to restore Dom Antonio, King of Portugal, the land forces being under the orders of Sir John Norris; but they had hardly put to sea when the commanders differed, and thus the attempt proved abortive. But as the war with Spain continued, a more formidable expedition was fitted out, under Sir John Hawkins and Sir Francis Drake, against their settlements in the West Indies, than had hitherto been undertaken during the whole course of it. Here, however, the commanders again disagreed about the plan; and the result in like manner disappointed public expectation. These disasters were keenly felt by Drake, and were the principal cause of his death, which took place on board his own ship, near the town of Nombre de Dios, in the West Indies, January 28, 1595.

DRAKENBORCH, ARNOLD (1684-1748), a celebrated scholar and editor, was born at Utrecht.

DRAMA signifies action. The term is applied to compositions which imitate action by representen the personages introduced in them as real and as employed in the action itself. The varieties of the drama differ more or less widely, both as to the objects imitated and as to the means used in the imitation. But they all agree as to the *method or manner* which is essential to the dramatic art, viz., *imitation in the way of action*.

The desire to give expression to feelings and conceptions is inseparable from human nature. Man expresses his thoughts and emotions by gesture and by speech, or by a combination of both; and these expressions he soon learns in the society of other men — and more especially on joyous or solemn occasions — to vary or regulate in dance and song. Another way of expression, often combined with the other, is imitation. To imitate, says Aristotle, is instinctive in man from his infancy; and from imitation all men naturally receive pleasure. Gesture and voice are means of imitation common to all human beings; and the aid of some sort of dress and decoration is generally within the reach of children, and of the childhood of nations. The assumption of character, whether real or fictitious, is therefore the earliest step towards the drama. But it is only a preliminary step; nor is the drama itself reached till the imitation extends to action.

Action, which man is not wont to attribute (except figuratively) to any but members of his own species and to the superior Being or beings in whose existence and power he believes, implies an operation of the will and an exaction of its resolution, whether or not amounting to a fulfilment of its purpose. It implies a procedure from cause to result. Action must therefore present itself to the human mind as having its source in a human or superhuman will. Every imitation of action by action is in germ a drama. But to this point not all nations have advanced.

After this step has been taken, it only remains for the drama to assume a form regarded by literature, of which art it thus becomes a branch. We may then speak of a dramatic literature; but this only a limited number of nations has come to possess. A nation may, however, have a drama without a dramatic literature; it may even continue in possession of the former after having ceased to cultivate the latter. On the other hand,

both before and after the drama of a nation has assumed a literary form, it may allow one or more of its adventurous elements — music, dancing, decoration — predominantly to assert themselves, and thus eventually to bring about the formation of new, or the revival of disused, dramatic species. But as a branch of literature the drama necessarily includes speech among its means of imitation; and its beginnings as such are accordingly, in the history of all literatures known to us, preceded by the beginnings at least of other forms of poetic composition, the lyric and the epic, or by those of one of these forms at all events. It is in the combination of both that the drama in its literary form takes its origin in the case of all national civilizations in which it has found a place with which we are more than superficially acquainted.

The art of acting is the indispensable adjunct of the dramatic art, while the aid of all other arts is merely an accident. But though really inseparable from one another, the courses of the dramatic and the histrionic arts do not at all times run parallel. The actor is only the temporary interpreter of the dramatist, though he may occasionally be left to supply some of the proper functions of his text-giver. On his side, the dramatist may in practice, though he cannot in theory, dispense with the actor's interpretation; but though the term literary drama is sometimes used of works kept apart from the stage, it is in truth a misnomer, since, properly speaking, no drama is such till it is acted.

The whole body of the law and rules of the drama, could it be written down with completeness, would indicate, together with the ends proper to the art, the means by which it is able to accomplish them. But neither the great authorities of dramatic theory — an Aristotle or a Lessing — nor the resolute apologists of more or less transitory fashions — a Corneille or a Dryden — have exhausted the exposition of the means which the drama has proved or may prove capable of employing. The multitude of technical terms and formulæ which has gathered round the practice of the art has at no time seriously interfered with the operation of creative power, whose inventive activity the existence of accepted systems has frequently — in the Greek drama, for instance, and in the Spanish — served to stimulate. On the other hand, it is self-evident that no dramaturgic theory has ever given rise to a single dramatic work of enduring value, unless the creative force was there to animate the form.

The task of this creative force begins with the beginnings of the dramatist's labors. For it is in the dramatic *idea* that the germ of the action of a play lies — not in the *subject*, which is merely its dead material. The story of the Scottish thane as it stood written in the chronicle, is the subject, not the action, of *Macbeth*. To convert a subject — whatever its kind or source — into the action or fable of a play is the primary task, which in its progressive development becomes the entire task, of the dramatist; and though the conception may expand or modify itself with execution, yet upon the former the latter depends. The range of subjects open to a dramatist may be wide as the world itself, or it may be limited by usage, by imperious fashion, by the tastes and tendencies of a nation or an age, by the author's own range of sympathies, by a thousand restrictions of an historical, moral, or æsthetic origin; it may be virtually confined (as with the earlier Greek tragedians) to a body of legend, or (as with the English comedians of the Restoration) to the social experiences of a particular epoch. But in all cases the transformation of the subject into the action is equally indispensable; and an imperfect transformation is (as in the old Chronicle Histories) the work of a rude, or (as in ninety-nine out

of a hundred modern plays "founded upon fact") that of a careless method of dramatic production.

What, then, are the laws which determine the nature of all actions properly such, however they may vary either in subjects or in form? In the first place a dramatic action must possess *unity* — and this requirement at once distinguishes it from the subject which has suggested its idea. The events of real life, the facts of history, the incidents of narrative fiction, are like the waves of a ceaseless flood; that which binds a group or body of them into a single action is the bond of the dramatic idea, and this it is which the dramatist has to supply. Within the limits of a dramatic action all its parts claim to be connected together as contributions to a single stream; and upon the degree in which they are true to this purpose their primary dramatic significance depends. The unity of action which a drama should possess, therefore, means that everything in it should form a link in a single chain of cause and effect. This law is incumbent upon every kind of drama — alike upon the tragedy which solves the problems of a life, and upon the farce which sums up the follies of an afternoon.

Such is not, however, the case with certain rules which have at different times been set up for this or that kind of drama, but which have no absolute validity for any kind. The supposed necessity that an action should consist of *one event*, is an erroneous interpretation of the law that it should be, as an action, *one*. For an event is but an element in an action, though it may be an element of decisive moment. The assassination of Cæsar is not the action of a *Cæsar*-tragedy; the loss of his treasure is not the action of *The Miser*. Again, unity of action does not exclude the introduction of one, or even more, subsidiary actions as contributing to the progress of the main action. The sole indispensable law is that these should always be treated as what they are — subsidiary only; and herein lies the difficulty, which Shakespeare so successfully overcame, of solving a combination of subjects into the idea of a single action; herein also lies the danger in the use of that favorite device of the modern drama — *by-* or *under-plots*. On the other hand, a really double or multiple action, logically carried out as such, is inconceivable in a single drama, though there is many a play which is palpably only two plays knotted into one. Every one is familiar with the dramatist who toward the drop of the curtain seems to be counting on his fingers whom he has killed or what couples he has to marry. Thirdly, unity of action need not imply unity of hero — for hero (or heroine) is merely a term signifying the principal personage of the action. And inasmuch as an action may consist in the joint contention of more than one will against the same obstacle — as in the instance of *The Seven against Thebes*, or *Romeo and Juliet* — it is only when the change in the degree of interest excited by different characters in a play results from a change in the conception of the action itself, that the consequent *duality* (or multiplicity) of heroes recalls a faulty uncertainty in the conception of the action they carry on. Lastly, the entirely arbitrary exactions of *unity of time* and of *place* are not, like that of unity of action, absolute dramatic laws. Their object is by representing an action as visibly continuous to render its unity more distinctly or easily perceptible; but the effect of their observance cannot be to render it more really *one*. Thus, they may in one sense be regarded as devices to avoid the difficulty experienced by the human mind in regarding an action as *one* when the eye beholds its different parts occurring in what are supposed to be different places, or when the process of its advance from cause to effect extends over what is

supposed to be a considerable period of time. But the imagination is capable of constructing for itself the bridges necessary to preserve to an action, conceived of as such, its character of continuousness. In another sense these rules were convenient usages conducing to a concise and clear treatment as actions of subjects in themselves of a limited nature; for they were a Greek invention, and the repeated resort to the same group of myths made it expedient for a Greek poet to seek the subject of a single tragedy in a part only of one of the myths open to him. The observance of unity of place, moreover, was suggested to the Greeks by certain outward conditions of their stage—as assuredly as it was adopted by the French in accordance with the construction and usages of theirs, and as the neglect of it by the Elizabethans was in their case encouraged by the established form of the English scene. The palpable artificiality of these laws needs no demonstration, so long as the true meaning of the term action be kept in view. Of the action of *Othello* part takes place at Venice and part at Cyprus, and yet the whole is one in itself; while the limits of time over which an action extends cannot be restricted by a revolution of the earth round the sun, or of the moon round the earth.

In a drama which presents its action as *one*, this action must be *complete in itself*. This law, like the first, distinguishes the dramatic action from its subject. The former may be said to have a real artistic, while the latter has only an imaginary real, completeness. The historian, for instance, aims indeed at a complete exposition of a body of events and transactions, and may even design to show their working to a definite end; but he is aware that this aim can never be more than partially accomplished, since he may present only what he knows, and all human knowledge is partial. But art is limited by no such uncertainty. The dramatist, in treating an action as *one*, comprehends the whole of it in the form of his work, since to him who has *conceived* it all its parts, from cause to effect, are equally clear. Accordingly, every drama should represent, in organic sequence, the several stages of which a complete action consists, and which are essential to it. This law of completeness, therefore, lies at the foundation of all systems of dramatic construction.

Every action, if conceived of as complete, has its causes, growth, height, consequences and close. There is no binding law to prescribe the relative length at which these several stages in the action should be treated in a drama, or to enforce a more or less exact correspondence between the successive presentment of each, and technical divisions, such as acts or scenes, which dramatic practice may find it convenient to adopt. Neither is there any law to assert any obligatory regulation of the treatment of such subsidiary actions as may be introduced in aid of the main plot, or of such more or less directly connected *episodes* which may at the same time advance and relieve its progress. But experience, as the parent of usage, has necessarily from time to time established certain rules of practice, from which the dramatist, working under customary forms, will find it neither easy, nor in most cases advantageous, to swerve too widely; and from the adoption of particular systems of division for particular species of the drama—such as that into five acts for a regular tragedy or comedy, which Roman example has caused to be so largely followed—has naturally resulted a certain uniformity of relation between the conduct of an action and the outward sections of a play. Essentially, however, there is no difference between the laws regulating the construction of a Sophoclean or Shakespearian tragedy, a comedy of Molière or Congreve, and a well-

built modern farce. And this, because all exhibit an action complete in itself.

The *introduction* or *exposition* forms an integral part of the action, and is therefore to be distinguished from the *prologue* in the more ordinary sense of the term, which, like the *epilogue* (or the Greek *parabasis*), stands outside the action, and is a mere address to the public from author or actor occasioned by the play. Prologue and epilogue, greatly as they may have at times contributed to the success of a drama, are mere external adjuncts, and have as little to do with the construction of a play as the bill which announces it, or the musical prelude which disposes the mind for its reception. The introduction or exposition belongs to the action itself; it is, as the Hindu critics called it, the seed or circumstance from which the business arises. Clearness being its primary requisite, many expedients have been at various times adopted to secure this feature. Thus, the Euripidean prologue, though spoken by one of the characters of the play, takes a narrative form, and places itself half without, half within the action of which it properly is part. The same purpose is served by the separate inductions in many of our old English plays, and the preludes or prologues, or by whatever name they may call themselves, in numberless modern dramas of all kinds—from *Faust* down to the favorites of the Ambigu and the Adelphi. Another such expedient is that of the inductive dumb-shows, which sought to secure rapidly together with impressiveness of exposition by the process of pantomimic summary. Such, again, are the opening scenes in French tragedy between hero and *confidant*, and those in French comedy and its derivatives between observant valet and knowing lady's-maid. But it is clear how all such expedients may be rendered unnecessary by the art of the dramatist, who is able outwardly also to present the introduction of his action as what it is—an organic part of that action itself; who seems to take the spectators *in medias res* while he is really building the foundations of his plot; who can dramatically account for an Iliad of woes without going back to Leda's egg; who touches in the opening of his action the chord which is to vibrate throughout its course—"Down with the Capulets! down with the Montagues!"—"With the Moor, sayest thou?"

The introduction ends with the opening of the movement of the action, a passage which it may prove highly effective to mark with the utmost distinctness (as in *Hamlet*, where it is clearly to be sought in the actual meeting between the hero and the ghost), but which in other instances is advantageously marked by the insertion of subsidiary action or episode (as in *King Lear*, where the opening of the movement of the main action would follow too sharply upon its exposition, were not the beginning of the subsidiary action of Gloucester and his sons opportunely introduced between them). From this point the second stage of the action—its *growth*—progresses to that third stage which is called its *height* or *climax*. All that has preceded the reaching of this constitutes that half of the drama—usually its much larger half—which Aristotle terms the tying of the knot. The varieties in the treatment of the growth or second stage of the action are infinite, and it is here that the masters of the tragic and the comic drama—notably those unequalled weavers of intrigues, the Spaniards—are able most fully to exercise their *inventive* faculties. If the growth is too rapid, the climax will fail of its effects—and it is, therefore, at this stage that subsidiary actions and episodes are most largely used; if it is too slow, the interest will be exhausted before the greatest demand upon it has been made—a fault to

which comedy is specially liable; if it is involved or inverted, a vague uncertainty will take the place of an eager or agreeable suspense, the action will seem to halt, or a fall will begin prematurely. In the contrivance of the *climax* itself lies one of the chief tests of the dramatist's art; for while in the transactions of real life their climax is often only a matter of assumption, in the action of a drama its climax should present itself as self-evident. In the middle of everything, says the Greek poet, lies the strength; and this strongest or highest point it is the task of the dramatist to make manifest. Much here depends upon the niceties of constructive instinct; much (as in all parts of the action) upon a thorough dramatic transformation of the subject. The historical drama here presents peculiar difficulties, and perhaps the example of *Henry VIII.*, as compared with Shakespeare's other historical plays, may be held to furnish an instructive example of defective (because hasty) workmanship.

From the climax, or height, the action proceeds through its *fall* to its *close*, which in a drama with an unhappy ending we still call its *catastrophe*, while to terminations in general we apply the term *dénouement*. This latter name would, however, more properly be used in the sense in which Aristotle employs its Greek equivalent, the untying of the knot—of the whole of the second part of the action, from the climax downward. If, in the management of the climax, everything depended upon making the effect, in the fall everything depends upon not marring it. This may be insured by a rapid progress to the close; but neither does every action admit of such treatment, nor is it in accordance with the character of those actions which are of a complicated kind. With the latter, therefore, the *fall* is often a *return*—i.e., in Aristotle's phrase, a change into the reverse of what is expected from the circumstances of the action—as in *Coriolanus*, where the Roman story lends itself so admirably to dramatic demands. In any case the art of the dramatist is in this part of his work called upon for the surest exercise of its tact and skill. The effect of the climax has been to concentrate the interest; the fall must therefore, above all, avoid dissipating it. The use of episodes is not even now excluded; but they must be of a more directly significant kind than is necessary in the earlier stages of the drama; even when serving the purpose of relief they must help to keep alive the interest previously raised to its highest pitch. This may be effected by a return or revolution; or again, by the raising of obstacles between the height of the action and its expected consequences, by the suggestion in tragedy of a seemingly possible recovery or escape from them (as in the wonderfully powerful construction of the latter part of *Macbeth*), by the gradual removal in comedy, or wherever the interest of the action is less intense, of such difficulties as the growth and climax have occasioned. In all kinds of the drama *discovery* will remain, as it was in the judgment of Aristotle, a most effective expedient; but it should be a discovery which has been foreshadowed by that method of treatment which in its consummate master, Sophocles, has been termed his *irony*. Nowhere should the close or catastrophe be other than a consequence of the action itself. Sudden revulsions from the conditions of the action—such as the *deus ex machina*, or the revising officer of the Emperor of China, or the nabob returned from India bring about—condemn themselves as unsatisfactory makeshifts. However sudden, and even, in manner of accomplishment, surprising, may be the catastrophe, it should not be unprepared, but like every other part of the action should preserve its organic connection with the whole. The sudden suicides which terminate so

many tragedies, and the paternal blessings which close an equal number of comedies, should be something more than a signal for the fall of the curtain.

The action of a drama, besides being one and complete in itself, ought likewise to be *probable*. The probability required of a drama is not that of actual or historical experience—it is a conditional probability, or, in other words, the consistency of the course of the action with the conditions under which, and with the characters by which, the dramatist has chosen to carry it on. As to the former, he is fettered by no restrictions save those which he imposes upon himself, whether or not in deference to the usages of certain accepted species of dramatic composition. Ghosts appear neither in real life nor in dramas of real life; but the introduction of supernatural agency is neither enjoined nor prohibited by any general dramatic law. The use of such expedients is as open to the dramatic as to any other poet; the judiciousness of his use of them depends upon the effect which, consistently with the general conduct of his action, they will exercise upon the spectator, whom other circumstances may or may not predispose to their acceptance. The ghost in *Hamlet* belongs to the action of the play; the ghost in the *Persa* is not intrinsically less probable, but the apparition seems to spring, so to speak, less naturally out of the atmosphere around it. Dramatic probability has, however, a far deeper meaning than this. The *Eumenides* is probable with all its primitive mysteriousness, and *Macbeth* with all its barbarous witchcraft. The proceedings of the feathered builders of Clouduckootown are as true to dramatic probability as are the pranks of Oberon's fairies. In other words, it is in the consistency of the action with the characters, and of the characters with themselves, that this dramatic probability lies. The dramatist has to represent characters affected by the progress of an action in a particular way, and contributing to it in a particular way, because, if consistent with themselves, they *must* be so affected, and *must* so act.

Upon the invention and conduct of his characters the dramatist must therefore expend a great proportion of his labor. His treatment of them will, in at least as high a degree as his choice of subject, conception of action, and method of construction, determine the effect which his work produces. And while there are aspects of the dramatic art under which its earlier history already exhibits an unsurpassed degree of perfection, there is none under which its advance is more perceptible than this. Many causes have contributed to this result; the chief is to be sought in the multiplication of the opportunities for mankind's study of man. The theories of the Indian critics on the subject of dramatic character are a scaffolding more elaborate than the edifice it surrounds. Aristotle's remarks on the subject are scanty; and it may be unhesitatingly asserted that the strength of the dramatic literature from whose examples he abstracted his maxims is not to be sought in the fullness or variety of its characterization. This relative deficiency the outward conditions of the Greek theater—the remoteness of actor from spectator, and the consequent necessity for the use of masks, and for the rising and therefore conventionalizing of the tones of the voice—undoubtedly helped to occasion. Later Greek and Roman comedy, with a persistency furnishing a remarkable illustration of the force of habit, limited their range of characters to an accepted gallery of types. Nor is it easy to ignore the fact that these examples, and the influence of national tendencies of mind and temperament, have inclined the dramatists of the Romance nations to attach less importance to characterization of a closer and more varied kind than to interest of action and effectiveness of construction. The

Italian and the Spanish drama more especially, and the French during a great part of its history, have in general shown a disposition to present their characters, as it were, ready made — whether in the case of tragic heroes and heroines, or in that of comic types, often molded according to a long-lived system of local or national selection. It is in the Germanic drama, and in its master, Shakespeare, above all, that the individualization of characters has been carried to its furthest point, and that their significance has been allowed to work itself out in closest connection with the progress of the dramatic action to which they belong.

But, however the method and scope of characterization may vary under the influence of different historical epochs and different tendencies or tastes of races or nations, the laws of this branch of the dramatic art are everywhere based on the same essential requirements. What interests us in a man or woman in real life, or in the impressions we form of historical personages, is that which seems to us to individualize them. A dramatic character must, therefore, whatever its part in the action, be sufficiently marked in its distinctive features to interest the imagination; with these its subsequent conduct must be consistent, and to these its participation in the action must correspond. In order that such should be the result, the dramatist must first have distinctly conceived the character, whatever may have suggested it to him. If, for instance, he has taken it, as the phrase is, from history or from contemporary life, he must transform it, just as he must transform the subject of the action into the action itself. His task is not to paint a copy of any particular man, but to conceive a kind of man — of which a particular individual may have occurred to him as a suggestive illustration — under the operation of particular circumstances. His conception, growing and modifying itself with the progress of that of the action, will determine the totality of the character he creates. The likeness which the result bears to an actual or historical personage may, very probably, from secondary points of view, concern the success of his creation; upon its dramatic effect this likeness can have no influence whatever. In a different sense from that in which Shakespeare used the words, it should be possible to say of every dramatic character which it is thought to identify with an actual personage, "This is not the man." The mirror of the drama is not a photographic apparatus.

Distinctiveness, as the primary requisite in dramatic characterization, is to be demanded in the case of all personages introduced into a dramatic action, but not in all cases in an equal degree. Schiller, in adding to the *dramatis personæ* of his *Fiesco* superscriptions of their chief characteristics, labels Sacco as "an ordinary person," and this suffices for Sacco. Between Bassanio's two unsuccessful rivals in the trial of the caskets there is difference enough for the dramatic purpose of their existence. But with the great masters of characterization a few touches, of which the true actor's art knows how to avail itself, distinguish even their lesser characters from one another; and every man is in his humor down to the third citizen. Elaboration is necessarily reserved for characters who are the more important contributors to the action, and the fulness of elaboration for its heroes. Many expedients may lend their aid to the higher degrees of distinctiveness. In characters designed to influence the whole of the action it must be marked early, in others in due relation to their contribution toward the course of the plot. Much is gained by a significant introduction of hero or heroine — so "Antigone" is dragged in by the watchman, "Gloucester" enters alone upon the scene, "Volpone" is discovered in adoration of his golden saint. Nothing

marks character more clearly than the use of contrast — as of "Othello" with "Iago," of "Octavio" with "Max Piccolomini," of "Joseph" with "Charles Surface." Nor is direct antithesis the only effective kind of contrast; "Cassius" is a foil to "Brutus," and "Leonora" to her namesake the "Princess." But besides impressing the imagination as a conception distinct in itself, each character must maintain a consistency between its conduct in the action and the features it has established as its own. This consistency does not imply uniformity; for, as Aristotle observes, there are characters which, to be represented with uniformity, must be presented as uniformly un-uniform. Of such consistently-complex characters the great critic cites no instances, nor indeed are they of frequent occurrence in Greek tragedy; in the modern drama "Hamlet" is their unrivaled exemplar; and "Weislingen" in Goethe's *Götz*, and "Alceste" in the *Misanthrope*, may be mentioned as other illustrations in dramas widely different from one another. It should be added that those dramatic literatures which freely admit of a mixture of the serious with the comic element thereby enormously increase the opportunities of varied characterization. The difficulty of the task at the same time enhances the effect resulting from its satisfactory solution; and if the conception of a character is found to bear a variety of tests resembling that which experience shows life to have at hand for every man, its naturalness, as we term it, becomes more obvious to the imagination. Naturalness is only another word for what Aristotle terms propriety; the artificial rules by which usage has at times sought to define particular species of character are in their origin only a convenience of the theater, though they have largely helped to conventionalize dramatic characterization. Lastly, a character should be directly effective with regard to the dramatic action in which it takes part — that is to say, the influence it exerts upon the progress of the action should correspond to its distinctive features, the conduct of the play should seem to spring from the nature of its characters. Hence, even the minor characters should not idly intervene, and, before they intervene significantly, we should be prepared by some previous notion of them. The chief characters, on the other hand, should predominate over or determine the course of the action; its entire conception should harmonize with their distinctive features; it is only a Prometheus whom the gods bind fast to a rock, only a Juliet who will venture into a living death for her Romeo. Thus in a sense chance is excluded from dramatic action, or rather, like every other element in it, bends to the dramatic idea. And in view of this predominance of character over action, we may appropriately use such expressions as a tragedy of love or jealousy or ambition, or a comedy of character — by which is merely meant one whose preponderating interest lies in the effectiveness with which its conduct impresses upon the mind the conception of its chief character or characters.

The term *manners* (as employed in a narrower sense than the Aristotlean) applies to that which colors both action and characters, but does not determine the essence of either. As exhibiting human agents under certain conditions of time and place, and of the various relations of community existing or conceivable among men, the action of a drama, together with the characters engaged in it and the incidents and circumstances belonging to it, must be more or less suited to the external conditions assumed. From the assumption of some such conditions not even those dramatic species which indulge in the most sovereign license, such as Old Attic comedy or burlesque in general, can wholly emancipate them-

selves; and even supernatural characters and actions must adapt themselves to some antecedents. But it depends altogether on the measure in which the nature of an action and the development of its characters are affected by considerations of time and place, or of temporary social systems and the transitory distinctions they produce, whether the imitation of a particular kind of manners becomes a significant element in a particular play. What is of vanishing importance in one may be an adjunct of inestimable value in another. The Hindu caste-system is an antecedent of every Hindu drama, and the peculiar organization of Chinese society of nearly every Chinese with which we are acquainted. Greek tragedy itself, though treating subjects derived from no historic age, had established a standard of manners from which in its decline it did not depart with impunity. The imitation of manners of a particular age or country may or may not be of moment in a play. The conjuncture of the Crusades is merely a felicitous choice for the time of action of *Nathan the Wise*; but the dramatic conflict of *Minna von Barnhelm* derives half its life from the background of the Seven Years' War. In some dramas, and in some species of drama, time and place are so purely imaginary and so much a matter of indifference that the adoption of a purely conventional standard of manners, or at least the exclusion of any definitely fixed one, is here desirable. The ducal reign of Theseus at Athens (when ascertained) does not date *A Midsummer Night's Dream*; nor do the coasts of Bohemia localize the manners of the customers of Autolycus. Where, on the other hand, as more especially in the historic drama, or in that kind of comedy which directs its shafts against the ridiculous vices of a particular age or country, the likeness of the manners represented to what is more or less known possesses significance, there the dramatist will use care in his coloring. How admirably is the French court specialized in *Henry V.*, how completely are we transplanted among the burghers of Brussels in the opening scenes of *Egmont*! What a picture of a clique we have in the *Précieuses Ridicules* of Molière; what a production of a class in the pot-house politicians of Holberg! Yet even in such instances the dramatist will only use what suits his dramatic purpose; he will select, not transfer in mass, historic features, and discriminate in his use of modern instances. The details of historic fidelity, and the lesser shades distinguishing the varieties of social usage, he will introduce at his choice, or leave to be supplied by the actor. Where the reproduction of manners becomes the primary purpose of a play, its effect can only be of an inferior kind; and a drama purely of manners is a contradiction in terms.

No complete system of dramatic species can be abstracted from any one dramatic literature. They are often the result of particular antecedents, and their growth is often affected by peculiar conditions. Different nations or ages use the same name, and may preserve some of the same rules, for species which in other respects their usage may have materially modified from that of their neighbors or predecessors. Who would undertake to define, except in their successive applications, such terms as *tragic-comedy* or *melodrama*? Yet this does not imply that all is confusion in the terminology as to the species of the drama. In so far as they are distinguishable according to the effects which their actions, or those which the preponderating parts of their actions, produce, they may primarily be ranged in accordance with the broad difference established by Aristotle between tragedy and comedy. *Tragic* and *comic* effects differ in regard to the emotions of the mind which they excite; and a drama is *tragic* or *comic* according as such effects are

produced by it. The strong or serious emotions are alone capable of exercising upon us that influence which, employing a bold but marvelously happy figure, Aristotle termed *purification*, and which a Greek comedian, after a more matter-of-fact fashion, thus expressed:

"For whensoe'er a man observes his fellow
Bear wrongs more grievous than himself has known,
More easily he bears his own misfortunes;"

i.e., the petty troubles of self which disturb without elevating the mind are driven out by the sympathetic participation in greater griefs, which raises while it excites the mind employed upon contemplating them. It is to these emotions—which are and can be no others than pity and terror—that actions and characters, which we call tragic, appeal. Those which we term comic address themselves to the sense of the ridiculous, and their subjects are those vices and moral infirmities, the representation of which is capable of touching the springs of laughter. Where, accordingly, a drama excludes all effects except those of the former class, it may be called a *pure tragedy*; when all except those of the latter, a *pure comedy*. In those dramas where the effects are mixed, it is the nature of the main action and of the main characters (as determined by their distinctive features) which alone enables us to classify such plays as serious or humorous dramas—or as tragic or comic, if we choose to preserve the terms. But the classification admits of a variety of transitions, from pure tragedy to mixed, from mixed tragedy to mixed comedy, and thence to pure comedy and her slighter sister, *farce*. This method of distinction has no concern with the mere question of the termination of a play, according to which Philostratus and other authorities have sought to distinguish between tragic and comic dramas. The serious drama which ends happily (the German *Schauspiel*) is not a species coördinate with tragedy and comedy, but only one subordinate to the former, if, indeed, it be necessary to distinguish it as a species at all. Other distinctions may be almost infinitely varied according to the point of view adopted for the classification.

Whatever elements the GREEK drama may, in the sources from which it sprang, have owed to Egyptian, or Phrygian, or other Asiatic influences, its development was independent and self-sustained. Not only in its beginnings, but so long as the stage existed in Greece, the drama was in intimate connection with the national religion.

The essential additions afterward made to its simple framework were remarkably few. Æschylus added a second actor, and by reducing the functions of the chorus further established the dialogue as the principal part of the action. Sophocles added a third actor, by which change the preponderance of the dialogue was made complete.

If the origin of Greek comedy is simpler in its nature than that of Greek tragedy, the beginnings of its progress are involved in more obscurity. It is said to have been invented by Susarion, a native of Megaris, whose inhabitants were famed for their coarse humor, which they communicated to their colonies in Sicily.

DRAMBURG, a town of Prussia, at the head of a circle in the government of Köslin, about fifty miles east of Stettin.

DRAMMEN, a town in the amt of Buskerud, in Norway, is situated at the northern end of the Drammen fiord, a western arm of Christiania fiord, at the mouth of the Dramselv. The greater part of the town has been rebuilt since the conflagrations of 1866 and 1870. The principal industrial establishments are oil, cotton, and tobacco factories, breweries, tanneries, saw-mills, and iron foundries. An active trade in wood,

pitch, and iron is carried on. The population at the end of December, 1875, was 18,838.

DRAUGHTS, a game of unknown origin. Some consider it to be a very old game, but Strutt (*Sports and Pastimes*) calls it a "modern invention." As early as 1668 M. Mallet published a treatise on draughts, at Paris, and the game was played in Europe at least a century earlier. The Romans played a similar game called *latrunculi*, the men moving diagonally, capturing by leaping over, and obtaining superior power when they arrived at the furthest row of squares. The board, however, consisted of only sixteen squares.

As soon as a man is moved on the square adjacent to an opponent's man, and there is an unoccupied square beyond, the unprotected man may be *captured* and removed from the board.

DRAWING. Although the verb to draw has various meanings, the substantive *drawing* is confined by usage to that of design, and is treated as if it were a synonym of design. The word comes from the Latin *trahere*, or from a kindred Gothic word, so that traction and drawing are nearly related, and preserve still the same meaning when applied to the work of animals or machines, as we say that a traction engine draws so many tons. Another form of the same word is dray, the strong, low vehicle used by brewers and carriers. It may be worth while to inquire what is the connection between the idea of a dray horse and that of a drawing-master.

The primitive idea, which is the common origin of both senses of the word to draw, is that of moving something in one's own direction. Thus, a horse draws a plow; but a carpenter does not draw his plane, he pushes it; and we should say that a locomotive drew a train when the locomotive was in front, but not when it was behind. The same idea is preserved in fine arts. We do not usually say, or think, that a sculptor is drawing when he is using his chisel, although he may be expressing or defining forms, nor that an engraver is drawing when he is pushing the burin with the palm of the hand, although the result may be the rendering of a design. But we do say that an artist is drawing when he uses the lead pencil, and here we have a motion bearing some resemblance to that of the horse or engine. The fingers of the artist draw the pencil point along the paper. The analogy may be clearly seen in certain circumstances. When the North American Indians shift their camps they frequently tie a tent-pole on each side of the horse like a shaft, leaving the ends to drag along the ground, whilst their baggage is laid on cross pieces. Here we have a very close analogy with artistic drawing. The poles are drawn on the ground as a pencil is on paper, and they leave marks behind them corresponding to the lines of the pencil.

The first idea of drawing is always *delineation*, the marking out of the subject by lines, the notion of drawing without lines being of later development. In primitive work the outline is hard and firm, but interior markings are given also. When the outline was complete, the primitive artist would proceed at once in many cases to fill up the space inclosed by it with flat color, but he did not understand light and shade and gradation.

By referring to the earliest kind of drawing we perceive how drawing may exist without certain elements which in modern times are usually associated with it. We generally conceive of drawing in close association with perspective, and at least with some degree of light and shade, but it may exist independently of both. This may, perhaps, help us to a definition of drawing. Such a definition would need to be exceedingly comprehensive, or else it would certainly exclude some of the

many arts into which drawing more or less visibly enters. A modern critic would be very likely to say that a figure was deficient in drawing if it was deficient in perspective, and yet the two are easily separable, as for example in the work of the mechanical draftsman; or drawing may be associated with a kind of perspective which is visually false, as isometric perspective. We might say that drawing was the imitation of form, but a moment's reflection would enable us to perceive that it may create forms without imitating, as it does in many fanciful conceptions of ornamental designers. It might be suggested that drawing was the representation on a flat surface of forms which are not flat, but the most variously-curved surfaces, as in vases, are frequently drawn upon, and flat objects are sometimes represented on rounded surfaces. The Greeks were so logical in their use of graphir for both drawing and writing, that it is not possible to construct a definition comprehensive enough to include all the varieties of drawing without including writing also. If we say that *drawing is a motion which leaves significant marks*, we are as precise as the numerous varieties of the art will permit us to be.

DRAYTON, MICHAEL (1563-1631), English poet, was born at Hartshill, near Atherston, in Warwickshire, in 1563. In 1591 he produced his first book, *The Harmony of the Church*, a volume of spiritual poems, dedicated to Lady Devereux. The best piece in this is a version of the Song of Solomon, executed with considerable richness of expression. A singular and now incomprehensible fate befell the book; with the exception of forty copies seized by the archbishop of Canterbury, the whole edition was destroyed by public order. It is probable that he had come up to town laden with poetic writings, for he published a vast amount within the next few years. In 1593 appeared *Idea: The Shepherd's Garland*, a collection of pastorals, in which he celebrated his own love-sorrows under the poetic name of Rowland. The circumstances of this passion appear more distinctly in the cycle of 64 sonnets, published in 1594, under the title of *Idea's Mirror*, by which we learn that the lady lived by the River Anker, in Warwickshire. It appears that he failed to win his "Idea," and lived and died a bachelor. The same year, 1594, saw the publication of *Matilda*, an epical poem rhyme royal, the first of his studies from English history. It was about this time, too, that he brought out *Endimion and Phoebe*, a volume which he never published, but which contains some interesting autobiographical matter and acknowledgments of literary help from Lodge, if not from Spenser and Daniel also. In his *Fig for Momus*, Lodge has reciprocated these friendly courtesies. In 1596 Drayton published his long and important poem of *Mortimeriados*, which deals with the Wars of the Roses, and is a very serious production in ottava rima. He afterward enlarged and modified this poem, and republished it in 1603 under the title of *The Barons' Wars*. He adopted the extraordinary resolution of celebrating all the points of topographical or antiquarian interest in the island of Great Britain, and on this laborious work he was engaged for many years. At last, in 1613, the first part of this vast work was published under the title of *Poly-Olbion*, eighteen books being produced, to which the learned Selden supplied notes. The success of this great work, which has since become so famous, was very small at first, and not until 1622 did Drayton succeed in finding a publisher willing to undertake the risk of bringing out twelve more books in a second part. This completed the survey of England, and the poet, who had hoped to "crown Scotland with flowers," and arrived at last at the Orcaes, never crossed the Tweed. He died in London on December 23, 1631, was

buried in Westminster Abbey, and had a monument placed over him by the Countess of Dorset, with memorial lines attributed to Ben Jonson.

DREAM. Dreams are a variety of a large class of mental phenomena, which may be roughly defined as states of mind which, though not the result of the action of external objects, resume the form of objective perceptions. To this class belong the fleeting images which occasionally present themselves during waking hours, and especially before sleep, the "visions" which occur in certain exalted emotional conditions, as in religious ecstasy, the hallucinations of the insane, the mental phenomena observable in certain artificially produced states (hypnotism), etc. At the same time they are roughly marked off by certain special circumstances. Thus, dreaming may be distinguished from the other species of the class as depending on the most complete withdrawal of the mind from the external world. All products of the imagination, which take the aspect of objective perceptions, must, it is clear, involve a partial aberration of the intellectual processes. Yet, in all cases, except that of dreaming—including even somnambulism—the mind preserves certain limited relations to external objects. In dreams, on the contrary, the exclusion of the external world from consciousness is, for the most part, complete. Sleep has, under normal circumstances, the effect both of closing the avenues (sensory nerves), by which external impressions are conveyed to consciousness, and of cutting off from the mind that mechanism (the voluntary-motor nerves and muscles) through which it maintains and regulates its varying relations to the outer world. Dreams cover a great variety of mental states, from fleeting momentary fancies to extended series of imaginations. Again, dreams have certain constant or approximately constant features, while, in other respects, they manifest wide diversity. Among the most general characteristics is to be named the apparent objectivity of dream-experience. The presence of this objective element in dreams is clearly indicated in their familiar appellation "visions," which also points to the well-recognized fact that a large part of our dream-imagination simulates the form of *visual* perception. The next general characteristic of dreams is that, though resembling waking experience in many respects, they seem never exactly to reproduce the order of this experience. Most of our dreams differ very widely from any events ever known to us in waking life, and even those which most closely resemble certain portions of this life introduce numerous changes in detail. These deviations involve one or two distinct elements. First of all, there is a great confusion of the order in time, space, etc., which holds among real objects and events. Widely remote places and events are brought together, persons set in new relations to one another, and so on. Secondly, the objects and scenes are apt to assume a greatly exaggerated intensity. They take a firmer hold of us, so to speak, than our waking experience. We may, when awake, think of dreams as unsubstantial and unreal, but to the dreamer at the moment his imagined surroundings are more real, more impressive, than the actual ones which he perceives when awake. Dream-fancy exaggerates the various aspects of objects, makes what is large still larger, what is striking still more striking, what is beautiful still more beautiful, and so on.

Having touched on these approximately universal characteristics of dreams, we will now specify a few of the more variable features. For example, in a large number of our dreams we appear to be passive spectators of events which we are incapable, or rather do not think, of controlling in any way. In other dreams, again, we seem to be lively actors in the scene—talk-

ing, moving, etc., as we are wont to do in waking life. In a class of dreams lying midway between these two extremes we appear to be impelled to act, to be struggling to seize some offered good or to avert some threatening evil, yet to be unable to execute our wishes. Once more, dreams differ very much as to their degree of reasonableness. It is certain that in many cases the dreamer is easily imposed on, sees no contradictions, does not seek to understand the events which unfold themselves before his fancy, and so on. In some instances, indeed, the mind of the dreamer loses even the sense of identity in objects, and metamorphoses persons in the most capricious manner; and this confusion of identity may embrace the dreamer himself, so that he imagines himself to be somebody else, or projects a part of himself, so to speak, into another personality, which thus becomes an *alter ego* and an object for the contemplation of the remaining self. Yet, though it is true that many, probably a large portion, of our dreams, are thus unintelligible to waking thought, there is a number of well authenticated dreams in which persons have proved themselves to be possessed not only of their ordinary, but even of an extraordinary, power of reflection. We refer to the well-known stories of the intellectual achievements of Condillac, Condorcet, Coleridge, etc., when dreaming. Once more, great differences are observable in dreams with respect to the feelings excited by the visionary experiences. Sometimes the circumstances in which we find ourselves affect us much as in waking life—danger terrifies us, beauty delights us, and so on. At other times, however, we are not thus affected—what would puzzle, confuse, or shock our minds in waking experience fails to do so in dream-life. Finally, there are certain exceptional features of dream-life, as a vague consciousness of dreaming, which assumes the form of a dream within a dream, and the repetition of the images of previous dreams with a recognition of the familiarity of the dream scenes. It need hardly be added that dreaming varies greatly, both in quantity and quality, according to individual temperament, habits of thought, etc.

DREDGE, THE NATURALIST'S, an implement constructed on the general plan of the common oyster-dredge, and used by naturalists for obtaining specimens of the animals living on the bottom of the sea at greater or less depths, for the purpose of determining their structure, and zoological relations, and ascertaining their geographical distribution.

DREDGING. Dredging is the name given by engineers to the process of excavating materials under water, raising them to the surface, and depositing them in barges. It is a process which has been useful from very early times in works of marine and hydraulic engineering, and it has of late years, by improved appliances, been brought to high perfection.

Bag and Spoon Dredge.—The first employment of machinery to effect this object is, like the discovery of the canal lock, claimed alike for Holland and Italy, in both of which countries dredging is believed to have been practiced before it was introduced into Britain. The Dutch at a very early period used what is termed the "bag and spoon" dredge for cleaning their canals. It was simply a ring of iron, about two feet in diameter, flattened and steeled for about one-third of its circumference, having a bag of strong leather attached to it by leathern thongs. The ring and bag were fixed to a pole, which, on being used, was lowered to the bottom from the side of a barge moored in the canal or river. A rope made fast to the iron ring was then wound up by a windlass placed at the other end of the barge, and the spoon was thus dragged along the bottom, and was guided in its progress by a man who held the pole.

When the spoon reached the end of the barge where the windlass was placed, the winding was still continued, and the suspending rope being nearly perpendicular, the bag was raised to the surface, bringing with it the stuff excavated while it was being drawn along the bottom. The windlass being still wrought, the whole was raised to the gunwale of the barge, and the bag being emptied, was again hauled back to the opposite end of the barge, and lowered for another supply. This system is slow, and only adapted to a limited depth of water and a soft bottom. But it has been generally employed in canals, and is much used in the Thames.

Dredging by Bucket between Two Lighters.—Another plan, practiced at an early period in rivers of considerable breadth, was to moor two large barges, one on each side; between them was slung an iron dredging bucket, which was attached to both barges by chains wound round the barrels of a crab winch worked by six men in one barge, and round a simple windlass, worked by two men in the other. The bucket, being lowered at the side of the barge carrying the windlass, was drawn across the bottom of the river by the crab winch on the other barge; and, having been raised and emptied, it was hauled across by the opposite windlass for a repetition of the process. This plan was in use in the Tay till 1833.

Steam Dredges.—In all large operations these and other primitive appliances have now, as is well known, been superseded by the steam dredge, which was first employed, it is believed, in deepening the Wear, at Sunderland, about the year 1796. The steam dredge, as now generally constructed, is a most powerful machine in skillful hands, excavating and raising materials from depths of fifteen upward to thirty feet of water, according to the size of the machinery, at a cost not very different from, and in some cases even less than, that at which the same work could be performed on dry land.

As to the kind of work that may be accomplished by dredging, it may be stated that almost all materials, excepting solid rock or very large boulders, may now be dredged with ease. Loose gravel is probably the most favorable material to work in; but a powerful dredge will readily break up and raise indurated beds of gravel, clay, and boulders, and even find its way through the surface of soft rock, though it will not penetrate very far into it. In such cases it is usual to alternate on the bucket-frame a bucket for raising the stuff, with a rake or pronged instrument for disturbing the bottom.

The construction of large river steam dredges is now carried on by many engineering firms. The main feature of the machine is the bucket-ladder, which is lowered through an ark formed in the vessel till it reaches the bottom. Along this ladder a series of buckets traverse which cut into the bottom at the lower extremity of the ladder, and return loaded with the excavated material, which is discharged at the top of the bucket-ladder into a lighter or barge prepared for its reception. The machines are sometimes made with single and sometimes with double ladders, sometimes discharging at the stern of the vessel and sometimes at both sides, but it is obviously impossible to give illustrative drawings of the different forms of dredges in sufficient detail to be practically useful.

American Dredges.—Dredging in Canada and the United States is done by what are called *Dipper* and *Clam-shell* dredges, the bucket dredge being seldom used.

The *dipper dredge* consists of a barge, with a derrick-crane reaching over the stern, suspending a large wrought-iron bucket which brings up the dredged material. To the bucket is attached a pole six inches by

four inches in cross section, by which means it is guided while being drawn along the bottom; it is then raised, and its bottom being made to drop open, the contents fall into the barge moored alongside of the dredge. The bottom of the bucket is kept closed by a catch, which, by means of a rope, can be withdrawn at the proper moment. The *clam-shell* is a box made of two similar pieces of wrought-iron hinged together at one end; by a simple arrangement of the gearing the clam, mouth open, drops down and sinks into the bottom, and the first effect of heaving up is to close it, thus imprisoning a quantity of material which is raised and deposited as in the case of the dipper. Both kinds of dredges are worked by a steam engine, and rough as they appear to be, they are extensively employed in deepening and widening river channels, making or deepening canals, and other such works.

DREINCOURT, CHARLES (1595-1669), an eminent minister of the French Calvinistic Church, was born at Sedan.

DRESDEN, the capital of the kingdom of Saxony, is situated in a beautiful and richly cultivated valley on both sides of the Elbe, at an altitude of 402 feet above the level of the Baltic, seventy-two miles E.S.E. of Leipsic, and 116 miles S.E. of Berlin. It is approached on almost every side through avenues of trees, and the distance is bounded by gentle eminences covered with plantations and vineyards. On the left bank of the Elbe are the Altstadt, with three suburbs, and Friedrichstadt (separated from the Altstadt by the Weisseritz, a small affluent of the Elbe); on the right the Neustadt and Antonstadt.

On account of its delightful situation, and the many objects of interest it contains, Dresden is often called "the German Florence," a name first applied to it by Herder. The most imposing of the churches is the church of Our Lady, built 1726-45, with a cupola 311 feet high. The Royal Palace, rebuilt in 1534, by Duke George, surmounted by a tower 387 feet high, the highest in Dresden, is externally unattractive, but the interior is splendidly decorated. In the palace chapel are pictures by Rembrandt, Nicolas, Poussin, Guido, Reni, and Annibale Caracci. The Prince's Palace, built in 1715, has a fine chapel, in which are various works of Torelli; it has also a library of 20,000 volumes. The Zwinger, begun in 1711, and built in the Rococo style, forms an inclosure within which is a statue of King Frederick Augustus I. It was intended to be the vestibule to a palace, but now contains a number of collections of great value. Until 1846 it was open at the north side; but this space has since been occupied by the Museum, a beautiful building in the Renaissance style, the exterior of which is adorned by statues of Michelangelo, Raphael, Giotto, Dante, Goethe, and other artists and poets, by Rietschel and Hähnel. The Brühl Palace was built in 1737, by Count Brühl, the minister of Augustus II. Near it is the Brühl Terrace, approached by a grand flight of steps, on which are groups, by Schilling, representing Morning, Evening, Day, and Night. The terrace commands a charming view of the Elbe and the surrounding country, and is a favorite promenade. The Japanese Palace, in the Neustadt, built in 1715, as a summer residence for Augustus II., receives its name from certain Oriental figures with which it is decorated; it is also sometimes called the Augusteum. Connected with it is a public garden, from which, as from the Brühl Terrace, fine views are obtained.

Dresden owes a large part of its fame to its extensive artistic, literary, and scientific collections. Of these the most valuable is its splendid picture gallery, founded by Augustus I., and increased by its successors at great

cost. It is in the Museum, and contains about 2,500 pictures, being especially rich in specimens of the Italian, Dutch, and Flemish schools. Besides the picture gallery the Museum includes a magnificent collection of engravings and drawings. There are upward of 350,000 specimens, arranged in twelve classes, so as to mark the great epochs in the history of art. A collection of casts, likewise in the Museum, is designed to display the progress of plastic art from the time of the Egyptians and Assyrians to modern ages. This collection was begun by Raphael Mengs, who secured casts of the most valuable antiques in Italy, some of which no longer exist.

The Japanese Palace contains a public library of more than 300,000 volumes, with about 3,000 MSS. and 20,000 maps.

The two chief art institutions in Dresden are the Royal Academy of Arts, founded in 1764, and the Royal Choir. The educational institutions of the town are both numerous and of a high order, including a technical college with a staff (in 1876) of thirty-nine professors and teachers, three gymnasia, two real schools of the first class, and many schools of different ranks for popular education.

Dresden, which is known to have existed in 1206, is of Slavonic origin. It became the capital of Henry the Illustrious, margrave of Meissen, in 1270, but belonged for some time after his death, first to Wenceslas of Bohemia, and next to the margrave of Brandenburg. Early in the fourteenth century it was restored to the margrave of Meissen. On the division of the territory in 1483, it fell to the Albertine line, which has since held it. Having been burned almost to the ground in 1491, it was rebuilt; and in the sixteenth century the fortifications were commenced and gradually extended. John George II., in the seventeenth century, formed the Grosser Garten, and otherwise greatly improved the town; but it was in the first half of the eighteenth century, under Augustus I. and Augustus II., who were kings of Poland as well as electors of Saxony, that Dresden assumed anything like its present appearance.

DREUX (*Durocassis, Droca*), a town of France in the department of Eure-et-Loir, on the Blaise, twenty-one miles north of Chartres.

DREW, SAMUEL (1765–1833), theologian, was born in the parish of St. Austin, in Cornwall, March 3, 1765. In 1798 the first part of Paine's *Age of Reason* was put into his hands; and in the following year he made his first appearance as an author by publishing his *Remarks* on that work. The book was favorably received, and was republished in 1820. His *Essay on the Immateriality and Immortality of the Soul* appeared in 1802, and is his best work. He died in 1833.

DREWRY'S BLUFF, the name of a high bluff or bank on the James River, in Chesterfield County, Va., which was the site of very heavy batteries and the scene of some of the most important military operations during the civil war. It was to escape the guns of these batteries that Gen. B. F. Butler dug the celebrated Dutch Gap canal, which, by cutting across the base of a long bend in the river (around which the batteries were located), shortened the distance from Richmond to the sea seven miles. This canal has been enlarged by the general government, and is still in use.

DREYSE, JOHANN NICHOLAS VON, inventor of the needle-gun, was the son of a locksmith, and was born at Sömmerda, November 20, 1787. He served his apprenticeship in the shop of his father, and from 1806 to 1809 followed his calling at Altenburg and Dresden. From 1809 to 1814 he was in Paris, where he succeeded in finding employment in the gun factory of the Swiss officer Pauli, patronized by Napoleon I. Afterward he

returned to Sömmerda, where, in partnership with Kronbiegel, he established a factory for the making of articles in iron by machine tools. In 1824 he patented a new percussion action for the gun, and continued thereafter to busy himself with experiments to improve in every way possible the process of shooting. In 1827 he invented the needle-gun, but without the advantage of breach-loading; and in 1836, having been encouraged in his endeavors by the Prussian Government, he invented his first complete needle-gun. A gunnery was opened by him in 1841, which ultimately supplied weapons for all the troops of all the German states, and before his death employed about 1,500 persons. In 1864 he and his family had the rank of nobility conferred on them. He died December 9, 1867.

DRIFFIELD (or GREAT DRIFFIELD, to distinguish it from the neighboring hamlet of Little Driffeld), a market-town of England, in the east riding of Yorkshire, twenty-eight miles to the east of York, and 196 miles from London by road.

DROGHEDA, a seaport, market-town, and municipal and parliamentary borough of Ireland, in the province of Leinster, about four miles from the mouth of the Boyne, and thirty-one and a half miles north of Dublin by rail. Though situated on the borders of Louth and Meath, it belongs to neither, as the town and surrounding district constitute a county of a city, with an area of nine square miles, or 5,780 acres.

Drogheda has always been considered by the English a place of much importance. In the reign of Edward III. it was classed along with Dublin, Waterford, and Kilkenny, as one of the four staple towns of Ireland. Richard II. received in its Dominican monastery the submissions of O'Neal, O'Donnell, and other chieftains of Ulster and Leinster. The right of coining money was bestowed on the town, and parliaments were several times held within its walls.

DROIHOBYCZ, a town of Austria, in the Galician circle of Sambor, on the Tysminika, a right-hand affluent of the Dniester, at the junction of a branch line from Boryslaw with the main Galician railway.

DROITWICH, a municipal and a parliamentary borough of England, in Worcestershire, on the Salwarpe, a left-hand tributary of the Severn, about seven miles by rail north-northeast of Worcester.

DRÔME, a department in the southeast of France, formed of parts of Dauphiné and Provence, is bounded west by the Rhone, which separates it from Ardèche, north and northeast by Isère, east by Hautes-Alpes, southeast by Basses-Alpes, and south by Vaucluse.

DROMEDARY. See CAMEL.

DROPSY (contracted from the old word *hydropisy*) signifies a collection of simple serous fluid in all or any of the cavities of the body, or in the meshes of its tissues. Dropsy of the subcutaneous connective tissue is termed *edema* when it is localized and limited in extent; when more diffuse it is termed *anasarca*; the term *edema* is also applied to dropsies of some of the internal organs, notably to that of the lungs. *Hydrocephalus* signifies an accumulation of fluid within the ventricles of the brain or in the arachnoid cavity; *hydrothorax*, a collection of fluid in one or both pleural cavities; *hydropericardium*, in the pericardium; *ascites*, in the peritoneum; and, when *anasarca* is conjoined with the accumulation of fluid in one or more of the serous cavities, the dropsy is said to be general.

Dropsy is essentially a symptom and not a specific disease, and ought not to be confounded with inflammatory exudations of a serous character. The translation is a mere filtrate from the blood produced by increased intravascular pressure, of local or general origin, and

occurring through the walls of the capillaries or smaller venules.

DROSTE-HULSHOFF, ANNETTE ELIZABETH, BARONESS OF (1798–1848), a German poetess, was born on the estate of Hülshoff, near Munster, and belonged to the elder branch of the Catholic Westphalian family which about the same time had its reputation increased by the juridical labors of Clemens Augustus von Droste-Hülshoff. She received an education of a more scientific character than usually fell at that time to the lot of her sex; and the delicate state of her health obliged her to lead a very quiet and secluded life, which in its turn fostered the natural sensibility of her temperament, and increased her devotion to literature and study. With the exception of a short time spent at Cologne and Bonn about 1825, she mainly resided at her mother's country seat of Rischhaus, near Munster; but in 1841 she went to the castle of Eppishausen, in Thuringia, and in 1844 became a guest at the house of her brother-in-law Von Lassberg, on the borders of the Lake of Constance. She had just purchased an estate in that neighborhood when she died in May, 1848. Besides a volume of *Gedichte* published during her lifetime (Stuttgart, 1844), we have also from her pen *Das Geistliche Jahr, nebst einem Anhang religiöser Gedichte*, Stuttgart, 1852; and *Letzte Gaben*, Hanover, 1860. The popularity of the first work is shown by a third edition in 1873. The characteristics of the author are great perfection of form, delicacy of feeling, and vivid realization of external nature. A number of her poems have been rendered into English by Medwin.

DROUAIS, JEAN GERMAIN, a French historical painter, was born at Paris on November 25, 1763. His father, Henri Drouais, and his grandfather, Hubert Drouais, were well-known portrait painters; and it was from his father that he received his first artistic instruction. He was afterward intrusted to the care of Brenet, an excellent teacher, though his own pictures did not take high rank. In 1780 David, who had just returned from Rome, opened a school of painting in Paris, and Drouais was one of his earliest and most promising pupils. He adopted the classical style of his master, and gave his whole time to study—painting during the day, and spending a great part of every night in designing. For weeks together it is said that he never left his studio. In 1783 he was admitted to compete for the great prize of painting offered by the Academy, the subject being *The Widow of Nain*. After inspecting the works of his fellow-competitors, however, he lost hope and destroyed his own canvas, but was consoled by the assurance of his master David that had he not done so he would have won the prize. Next year he was triumphantly successful, the picture of *The Woman of Canaan at the Feet of Christ*, with which he gained the prize, being judged by competent critics to be worthy of comparison with the works of Poussin. He was carried shoulder high by his fellow-students through the streets to his mother's house, and a place was afterward found for his picture in the Louvre. His success making him only the more eager to perfect himself in his art, he accompanied David to Rome, where he worked even more assiduously than in Paris. He was most strongly influenced by the remains of ancient art and by the works of Raphael. Goethe, who was at Rome at the time it was finished, has recorded the deep impression made by his picture of Marius at Minturno, which he characterizes as in some respects superior to the work of David, his master. The last picture which he completed was his *Philoctetes on the Island of Lemnos*. He died of fever on July 15, 1788. A monument to his memory was erected by his fellow-students in the church of Santa Maria in the Via Lata.

DROUET, JEAN BAPTISTE, one of the Terrorists of the first French Revolution, chiefly noted for the part he played in the arrest of Louis XVI. at Varennes, was born at Sainte-Menehould in 1763. He served for seven years in the army, and afterward assisted his father, who was post-master of his native town. The carriages conveying the royal family on their flight to the frontier stopped at his door on the evening of June 21, 1791; and the passengers, traveling under assumed names, were recognized by Drouet, who immediately took steps which lead to their arrest and detection on reaching Varennes. For this service the Assembly awarded him 30,000 francs, but he appears to have declined the reward. In September, 1792, he was elected deputy to the Convention, and took his place with the most violent party. He voted the death of the king without appeal, showed implacable hostility to the Girondins, and proposed the slaughter of all English residents in France. Sent as commissioner to the army of the north, he was captured at the siege of Maubeuge and imprisoned at Spielberg till the close of 1795. He then became a member of the Council of Five Hundred, and was named secretary. Drouet was implicated in the conspiracy of Babeuf, and was imprisoned; but he made his escape into Switzerland, and thence to Tene-riffe. There he took part in the successful resistance to the attempt of Nelson on the island, in 1797. The first empire found in him a docile sub-prefect of Sainte-Menehould. After the second Restoration he was compelled to quit France. Returning secretly he settled at Macon, under a false name and a guise of piety, and preserved his incognito till his death, which took place in that town April 11, 1824.

DROUET D'ERLON, JEAN BAPTISTE, Count, marshal of France, and governor of Algeria, was born at Rheims, July 29, 1765. He entered the army in 1782, was discharged after five years' service, re-entered it in 1792, and two years later became aid-de-camp to General Lefèvre. He served at the sieges of Valenciennes, Quesnoy and Condé, and under Hoche at the blockade of Ehrenbreitstein. As general of brigade (1799) he fought at Zurich, at the bridge of Schaffhausen, and at the taking of Constance. In August, 1800, he was promoted general of division. He distinguished himself at Ulm and Hohenlinden, and by a skillful maneuver decided the victory of Jena (1806). Drouet took a brilliant part in the siege of Dantzic, and signed the capitulation of the town; he fought at Mohrungen, and was severely wounded at Friedland (1807). After this battle he was made grand officer of the Legion of Honor, was created Count d'Erlon, and received a pension. He afterward served with distinction in the Peninsular War, and defeated General Hill at the Col de Maya. After the first Restoration he was named commander of the sixteenth military division. He presided at the council of war, at Lille, which acquitted General Excelmans; but in March, 1815, he was arrested on suspicion of treason, and suffered a short imprisonment. He was present under Napoleon at Waterloo, and was severely reproached by the emperor for not bringing his division into action. After the second Restoration he quitted France, and did not return till 1825. He was appointed governor of Algeria in 1834, was created marshal of France in 1843, and died at Paris January 25, 1844.

DROWNING is one of the various forms of death from suffocation, the asphyxiating agent being water; and, accordingly, all the appearances characteristic of death from asphyxia or apnoea are present—varying in intensity according to the manner of the death, whether it has or has not been attended with violent struggling. In addition, owing to the medium in which the death

occurs, certain other signs specially characteristic of drowning are never absent.

By older authors a peculiar form of death by drowning was described, in which the appearances of asphyxia were wanting, and also the special signs of this form of death. To this the name of synopal asphyxia was given. Hence, in treating of drowning, descriptions of these two forms were given, and in the case of bodies recovered from the water death was said to have occurred either from asphyxia or from syncope. Now, undoubtedly it often happens when persons fall or are thrown into the water that, in consequence of fright or of the shock sustained by violent contact with the surface of the water, no effort is made to save themselves, and death rapidly ensues from syncope. In such cases none of the characteristic signs of drowning are found, and, so far as the examination of the body is concerned, it is impossible to decide upon the exact cause of death. It is quite within the bounds of possibility that in such cases death may have been effected by other means, and the body have been thrown into the water to conceal the true cause of death.

No such uncertainty, however, attends the investigation of a case of drowning by true asphyxia, as it was called. The drowned individual struggles to reach the surface of the water in his efforts to respire; as he does so he draws water into his windpipe, which provokes cough. This expels the air from his lungs, and the water which threatened to suffocate him; and as he sinks, in his struggles he endeavors again to respire, but now draws water into his mouth which chokes him, and can only be got rid of by swallowing. Insensibility then comes on, and death rapidly but placidly ensues from a true asphyxia.

DROZ, FRANÇOIS-XAVIER JOSEPH (1773-1850), a French writer on moral and political subjects, was born in the City of Besançon, where his family had furnished men of considerable mark to the legal profession.

DRUIDISM, the name usually given to the religious system of the ancient Gauls and Britons. The word Druid, one form or other of which is used in early Celtic records to designate a class of priests corresponding to the Magi or wise men of the ancient Persians, is of uncertain etymology.

We find in Cæsar the first, and at the same time the most circumstantial, account of the Druids to be met with in the classical writers. In the digression on the manners and customs of Gaul and Germany which occupies a portion of the sixth book of his Gallic war, he tells us that all men of any rank and dignity in Gaul were included among either the Druids or the nobles. The former were the religious guides of the people as well as the chief expounders and guardians of the law. On those who refused to submit to their decisions they had the power of inflicting severe penalties, of which excommunication from society was the most dreaded. As they were not a hereditary caste, and enjoyed exemption from service in the field as well as from payment of taxes, admission to the order was eagerly sought after by the youth of Gaul. The course of training to which a novice had to submit was protracted, extending sometimes over twenty years. All instruction was communicated orally, but for certain purposes they had a written language in which they used the Greek characters. The president of the order, whose office was elective and who enjoyed the dignity for life, had supreme authority among them. They taught that the soul was immortal. Astrology, geography, physical science, and natural theology were their favorite studies. Britain was the headquarters of Druidism, but once every year a general assembly of the order was held within the territories of the Carnutes in Gaul, probably in the

neighborhood of the modern Dreux. The Gauls in extreme cases offered human sacrifices, usually criminals. Their chief deity was identified by Cæsar with the Mercury of the Romans. Writing a few years later, Cicero, in his treatise on divination, introduces his brother Quintus as remarking on the existence among the Gauls of augurs or soothsayers, known by the name of Druids. With one of these, Divitiacus, an Æduan, Quintus says he was well acquainted. Cicero's contemporary, Diodorus Siculus, informs us that there were among the ancient Gauls bards, certain philosophers and theologians named Druids, and soothsayers. He also hints at some connection between their philosophy and that of Pythagoras. Something more noteworthy is told by the elder Pliny. According to him the Gallic Druids held the mistletoe in the highest veneration. Groves of oak were their chosen retreats. Whatever grew on that tree was thought to be a gift from heaven, more especially the mistletoe. When thus found, the latter was cut with a golden knife by a priest clad in a white robe, two white bulls being sacrificed on the spot. The name given it by the Druids signified in their language All-Heal, and its virtues were believed to be very great. The other herbs, called selago and samolus, were likewise greatly valued by them for their medicinal efficacy. But the most remarkable of all the Druidical charms was the anguineum, or snake's egg. It was said to be produced from the saliva and frothy sweat of a number of serpents writhing in an entangled mass, and to be tossed up into the air as soon as formed. The fortunate Druid who managed, as it fell, to catch it in his sagum, or cloak, rode off at full speed on a horse that had been in waiting for him, pursued by the serpents till they were stopped by the intervention of a running stream. A genuine specimen of this egg, when thrown into the water, would float against the current, even if encased in gold. Pliny declares that he had seen one. "It is," he says, "about the size of a moderately large, round apple, and has a cartilaginous rind studded with cavities like those on the arms of a polypus." Tacitus, in describing the attack made on the island of Mona (Anglesea) by the Romans under Suetonius Paulinus, represents the legionaries as being awe-struck on landing by the appearance of a band of Druids who, with hands uplifted toward heaven, poured forth terrible imprecations on the heads of the invaders. The courage of the Romans, however, soon overcame such fears, the Britons were put to flight, and the groves of Mona, the scene of many a sacrifice and bloody rite, were cut down.

DRUM, a musical instrument of percussion, which is supposed to have been introduced into Europe from the East by the Moors or after the Crusades. In certain forms, however, it was known in Europe in classical times. The Greek and Roman *tympanum* seems from descriptions and pictorial representations to have included not only tambourines but kettledrums of a small size, or at least instruments convex on one side like the kettledrum. The instrument designated in Scripture a timbrel (Heb. *toph*) was undoubtedly a kind of tambourine, such as might be conveniently played by females. In India and Egypt the use of drums in a considerable variety of forms may be traced back to the earliest historic times. The tam-tam or tom-tom of India, a cylindrical drum of some size beaten with the fingers, had its counterpart in Egypt, at least as early as 1600 B.C. Among savage races, whose music has not risen above the primitive or percussive stage, the drum is naturally the chief, and in many cases the sole instrument employed. Three principal forms of drum are in general use in the modern orchestra—the common or side drum, the base or Turkish drum, and the kettle-drum. The first is composed of a cylinder of wood, or,

more generally, of metal, covered at each end with vellum or parchment, the tension of which is regulated by strings. As its name indicates, it is worn at the side of the performer, who beats upon the upper end with two sticks. Its distinctive though not its exclusive use is to accompany the military fife band. The base drum is a larger instrument of the same kind, the cylinder being composed of oak. It is beaten at both ends with drum-sticks furnished with leather pads. It is an important constituent of a full military band, but it is also employed in the orchestra, especially by more recent composers. The kettledrum is the most important form of the instrument in orchestral as distinct from military music. It is composed of a basin of brass or copper, almost hemispherical in shape, covered with vellum attached to an iron ring, and it is usually placed upon an iron tripod. By means of screws it is capable of being tuned within certain necessarily narrow limits. Kettledrums are always used in pairs, one being tuned to the key-note and the other to the fourth below. The music is invariably written in the key of C; and the key in which it is to be played, if different, is indicated in words at the beginning of the passage. The three forms of drum just described are essential in every complete orchestra. In addition other percussive instruments, such as the gong and the tam-tam, are sometimes introduced for the sake of particular effects.

DRUMMOND, HENRY (1786-1860), an English banker, politician, and miscellaneous writer, remarkable for the versatility of his gifts and the eccentricity of his character.

DRUMMOND, THOMAS, was born at Edinburgh, in October, 1797, and was educated at the High School there. He was appointed to a cadetship at the Royal Military Academy, Woolwich, in February, 1813; and by Christmas of that year, he had entered the Second Academy. He early distinguished himself by his aptitude for mathematics, and an original demonstration in conic sections, discovered by him whilst still in the junior Academy, was published in Leybourn's *Mathematical Repository*. In 1815, he entered the Royal Engineers. In 1819, when meditating the renunciation of military service for the bar, he made the acquaintance of Colonel Colby, from whom, in the following year he received an appointment on the trigonometrical survey of Great Britain. During his winters in London he applied himself indefatigably to the higher branches of mathematics, and attended the chemical lectures of Brande and Faraday at the Royal Institution. The mention at one of these of the brilliant luminosity of lime when incandescent suggested to him the employment of that material instead of the Argand lamp for making surveying stations visible when far distant. In the autumn of 1824, he assisted Captain Colby in the selection of stations for the great triangulation, and the best situation as a base for the survey ordered to be made in Ireland. His lime-light apparatus (the Drummond light) and heliostat, both completed in 1825, he first put to a practical test in 1826, at the stations of the Irish survey. In the next season he brought into use an improved form of his heliostat, in which the telescope was dispensed with. Through the recommendation of Mr. Bellenden Ker, Drummond was, in 1831, appointed by Lord Brougham to be superintendent of the Boundary Commission. On the passing of the Reform Act he resumed his duties on the survey — which, however, he soon finally quitted in order to become private secretary to Lord Althorp, the chancellor of the exchequer. In 1834, on the dissolution of the Government, he received a pension of £300 a year, which he drew until September 30, 1835. In July of that year, he was made under-Secretary of State for

Ireland; and when, in 1836, the bill for municipal reform in that country was introduced into Parliament, he undertook the direction of the officers appointed to determine the boundaries of the boroughs. He was in October, 1836, made head of the Irish Railway Commission, the report of which was completed in 1838. The health of Captain Drummond — impaired originally by exposure during the Irish survey, and further injured by his unwearied exertions on the Boundary Commission — had, through his last labors in connection with the railways of Ireland, received a strain from which it never recovered. His strength gradually gave way, and he died on April 15, 1840.

DRUMMOND, WILLIAM (1585-1649) of Hawthornden, a Scottish poet of the Spenserian school, was born at Hawthornden, near Edinburgh, on December 13, 1585. Drummond's first publication appeared in 1613, and was an elegy on the death of Henry, Prince of Wales, called *Tears on the Death of Muriades*. As might have been expected from Spenser's influence, it is pastoral throughout. Milton, in his *Lycidas*, has at once imitated and surpassed this early poem of Drummond's. In 1616, the year of Shakespeare's death, appeared *Poems: Amorous, Funerall, Divine, Pastoral: in Sonnets, Songs, Sextains, Madrigals*, being substantially the story of his love and loss. Drummond's next poem is entitled *Feasting: A Panegyric to the King's Most Excellent Majesty*, and celebrates James' visit to Scotland in 1617. In 1618 there was an interesting correspondence between Drummond and Drayton; and, about the close of the same year, or about the beginning of 1619, Drummond was honored with a visit of a fortnight or more from the great literary dictator of the time — Ben Jonson. In 1623, the year of a great famine and consequent mortality in Scotland, appeared the poet's fourth publication, entitled *Flowers of Zion: By William Drummond of Hawthornden: to which is adjoyned his Cypress Grove*. In 1632 Drummond married Elizabeth Logan, by whom he had five sons and four daughters. Drummond was a true Scottish gentleman in his pride of blood. Partly to please the Earl of Perth, and partly to satisfy his own curiosity, the poet had studied the genealogy of the family very carefully, and had given due prominence to the fact that Annabella Drummond, daughter of Sir John Drummond of Stobhall, was the queen of Robert III. This investigation was the real secret of Drummond's interest in Scottish history; and so we find that he now began his *History of the Lives and Reigns of the Five Jameses, Kings of Scotland* — a work which did not appear till 1655, and is remarkable only for its good literary style. His next work was called forth by the king's enforced submission to the opposition of his Scottish subjects. It is entitled *Irene: or a Remonstrance for Concord, Amity, and Love amongst His Majesty's Subjects*, and embodies Drummond's political creed of submission to authority as the only logical refuge from democracy, which he hated. In 1639 Drummond had to sign the Covenant in self-protection, but was uneasy under the burden, as existing squibs by him testify.

After being an invalid for several months, the poet died on December 4, 1649, and was buried in the churchyard of Lasswade, a neighboring village.

Drummond was so successful as a writer of sonnets that he was called "the Scottish Petrarch;" and his sonnets are still ranked immediately after Shakespeare's, Milton's, and Wordsworth's. Most of his poems are steeped in the pre-Copernican ideas of astronomy, and are marked by a sense of the smallness of the visible in comparison with the infinite lying beyond. This is one of Drummond's favorite moods; and he is constantly

harping upon such phrases as "the All," "this great All." Even in such of his poems as may be called more distinctively Christian, this philosophic conception is at work. Drummond's poems are distinguished by pensive beauty, sweetness or versification, and richly worded descriptions, but lack vigor and originality. Altogether this poet is to be remembered as the best representative of "sweetness and light" amid much that was dull and ephemeral in contemporary Scottish literature.

DRUNKENNESS may be either an *act* or a *habit*, the latter consisting in frequent repetitions of the former. As an act it may be an accident, most usually arising from the incautious use of one or other of the commonly employed intoxicating agents; as a habit it is one of the most degrading forms of vice which can result from the enfeeblement of the moral principle by persistent self-indulgence.

Drunkenness is a mere complexity of symptoms which may arise from many different causes. To be drunk is simply to be apoplectic; and the close resemblance between the pathological and the toxic phenomena has been the cause of many untoward accidents.

The effects of intoxicants are variously modified by the temperament of the individual and the nature of the inebriant. When that is alcohol, its action on an average individual is first to fill him with a serene and perfect self-complacency. His feelings and faculties are exalted into a state of great activity and buoyancy, so that his language becomes enthusiastic, and his conversation vivacious if not brilliant. The senses gradually become hazy, a soft humming seems to fill the pauses of the conversation, and modify the tones of the speaker, a filmy haze obscures the vision, the head seems lighter than usual, the equilibrium unstable. By and by objects appear double, or flit confusedly before the eyes; judgment is abolished, secretiveness annihilated, and the drunkard pours forth all that is within him with unrestrained communicativeness; he becomes boisterous, ridiculous, and sinks at length into a mere animal. Every one round him, the very houses, trees, even the earth itself, seem drunken and unstable, he alone sober, till at last the final stage is reached, and he falls on the ground insensible — *dead drunk* — a state from which, after profound slumber, he at last awakes feverish, exhausted, sick, and giddy, with ringing ears, a throbbing heart, and a violent headache.

The poison primarily affects the cerebral lobes, and the other parts of the cerebro-spinal system are consecutively involved, till in the state of *dead-drunkenness* the only parts not invaded by a benumbing paralysis are those automatic centers in the medulla oblongata, which regulate and maintain the circulation and respiration. But even these centers are not unaffected; the paralysis of these as of the other sections or the cerebro-spinal system varies in its incompleteness, and at times becomes complete, the coma of drunkenness terminating in death. More usually the intoxicant is gradually eliminated, and the individual restored to consciousness, a consciousness disturbed by the secondary results of the agent he has abused, and which vary with the nature of that agent. Whether, however, directly or indirectly, through the nervous system the stomach suffers in every case; thus nutrition is interfered with by the defective ingestion of food, as well as by the mal-assimilation of that which is ingested; and from this cause, as well as by the peculiar local action of the various poisons, we have the various organic degenerations induced which in most cases shorten the drunkard's days.

DRUSES, a people of Syria remarkable for the pertinacity and success with which they have defended their independence against the encroachments of Turkish supremacy, and for the profession of a form of religious

belief, which, in the words of Dean Milman, is "one of the most extraordinary aberrations which ever extensively affected the mind of man." The greater body, whom for the sake of convenience we shall distinguish as Western Druses, occupy the mountainous region of the Lebanon and Anti-Lebanon; but there also extensive settlements in the Hauran or Auranitis; a considerable colony exists at Safed, in Palestine proper, to the northwest of the Sea of Tiberias; and it is believed that a number of Crypto-Druses—Druses, however, by religion only, and not by race—still maintain themselves in the neighborhood of Cairo. The Western Druses are found as far north as Beyrout, as far south as Sur or Tyre, and as far east as Damascus; In the north they are intermingled with Maronites, and in the South with Greeks and Melchites. They form the exclusive population of about 120 towns and villages, and share with the Christians the occupation of nearly 300 more; their total not reckoning women and children, has been calculated at from 60,000 to 65,000 men. The chief town of the district which they occupy, though not their most populous settlement, is Deir-el-Kamar—the Convent of the Moon—situated about fifteen miles southeast of Beyrout, in the district of Manoasif; it was the seat of the powerful family of the Abu Nokads, and in its vicinity is the palace of Ebteddin, formerly occupied by the emir Beshir Shehaab. Ammatam and Bakhlin in the Lebanon, and Hasbeya and Rosheya in the Anti-Lebanon, rank as the sacred cities and serve as rallying points in time of war.

The Eastern or Hauranitic Druses are less known, and preserve their ancient customs and characteristics perhaps more perfectly than their western brethren. The date at which they first settled in the district is not ascertained; but for many generations the Hauran has been the chosen refuge of rebels and malcontents from the west, and has consequently increased its population at the expense of the Lebanon. The same process of emigration is still going on; and the Turkish government has to be careful not to press too heavily on the defaulting Druse of the west, lest it needlessly augment the power of the more independent community. The number in the Hauran was stated by Cyril Graham at 7,000 men in 1857; at present it must be much nearer 10,000. The principal town is Kunawat, the residence of the most influential of the Ockals.

In many respects the Druses are a mysterious people, and, in spite of the great additions made to our knowledge in the present century, many important questions in regard to them still await solution. Of their origin and ethnographical affinity no absolutely certain information has been obtained. Though they speak Arabic with a correctness that would do credit to the people of Mecca, and their feudal aristocracy refer to their Arab descent with feelings of pride, it is pretty generally agreed that, whatever may be true of certain families, the main body of the people does not belong to the Semitic family. Mr. Cyril Graham regards them as of Indo-Teutonic race, and describes them as "fair-haired, of light complexion, strong and well-made, and often as tall as northern Europeans." Their own tradition vaguely connects them with China, where they firmly believe that to this day there exist numerous adherents of their creed, and whence they expect the advent of their promised deliverer. The mere fact that they possess a knowledge of the Celestial Empire in such contrast to the geographical ignorance of the other Syrian races is in itself remarkable enough; though it would be rash to assert that it is practically significant. According to an opinion mentioned by Sandys, and pretty often to be met with in the older accounts, they derive their name from a Count of Dreux, and are mainly

the descendants of a band of the crusaders who were left behind, and finally forgot their country and language and creed; but this story is disproved by the fact that allusion is made to their existence at an earlier date by Benjamin of Tudela.

A more modern theory identifies them with one or other of the tribes introduced into Northern Syria by Esarhaddon, in the seventh century B.C. If its generally but not universally received derivation from Ismail Darazibe accepted, their present name, which is properly *Durus*, dates no further back than about the eleventh century, and throws no light on the question of affinity; and just as little is to be learned from the various explanations current among themselves — those *put in possession* (of the faith), from the Arabic verb *darisa*; those who *read* the book of Hamze, as if from *darasa*; the *clever ones*, from *Durs*; the *shields*, from *Turs*, and so on. It is well known, however, that the district which they now occupy has over and again received extraneous additions to its population; and, in the absence of more precise information, it seems at least certain that, whatever may have been the original nucleus of his race, the Druse of the present day carries in his veins the mingled blood of a various ancestry, in like manner as his religion combines the products of many different intellectual moments. The presence of a Kurdish element is undoubted, and its influence may probably be traced in the peculiar position granted to the women.

DRUSIUS, or VAN DEN DRIESCHE, JOHANNES (1550-1616), a learned Protestant divine, distinguished specially as an Orientalist and exegete, was born at Oudenarde, in Flanders.

DRUSUS, MARCUS LIVIUS, a patrician of the age of the Gracchi, and a colleague of Caius Gracchus in the tribuneship, 122 B.C. He was a creature of the senatorial party, and was employed by them to outbid the measures of the popular tribune. Gracchus had proposed to found three colonies outside Italy; Drusus provided twelve in Italy. Gracchus had proposed to distribute allotments to the poorer citizens subject to a state rent-charge; Drusus promised them free of all charge. Gracchus had proposed to give the Latins the citizenship; Drusus added immunity from corporal punishment, even in the field. The bait thus offered was swallowed; the people forsook their champion, who fell an easy victim to the hired bravos of Oppidius. Drusus was rewarded for his services by the consulship, which he held, 112 B.C. He received Macedonia for his province, where he distinguished himself in a campaign against the Scordisci, whom he drove across the Danube into Dacia, being the first Roman general who reached that river. It is probable that he is the Drusus mentioned by Plutarch, as having died in the year of his censorship, 109 B.C.

DRUSUS, MARCUS LIVIUS, son of the preceding, and, like his father, during the first part of his career a thorough supporter of the optimates. From his earliest youth he devoted himself to politics, was assiduous as a pleader in the law-courts, and lavished in gifts and shows the large fortune which he had inherited. By such popular acts he rose to be tribune of the people, 91 B.C. In the agitation which was then raging for the transfer of the judicial functions from the equites to the senate he proposed as a compromise a measure which restored to the senate their office of judges, while the numbers were doubled by the admissions of 300 equites. But the senate was lukewarm, and the knights, whose occupation was threatened offered the most violent opposition. In order, therefore, to catch the popular votes, he coupled with this measure others for the establishment of colonies in Italy and Sicily, and the distribution of corn at a re-

duced rate. By help of these riders the bill was carried, but not till its most factious opponent, the consul Philippus, had been arrested by Drusus and carried off to prison. To strengthen his hands Drusus now sought a closer alliance with the Italians, promising them the long coveted boon of the Roman franchise. The senate, who had before suspected his aims, broke out into open opposition. His laws were abrogated as informal, and each party armed its adherent for the civil struggle which was now inevitable. It was only prevented, or rather postponed, by the assassination of Drusus. One evening as he was returning to his house he was struck by a dagger, and fell at the foot of his father's bust, exclaiming with his dying breath, "When will the republic find again a citizen like me?"

DRYADES, or HAMADRYADES, in Greek Mythology, were nymphs of trees and woods, each particular tree or wood being the habitation of its own special Dryad, just as each river was the abode of its own local god.

DRYANDER, JONAS (1748-1810), a Swedish naturalist of eminence, and a pupil of Linnæus.

DRYDEN, JOHN (1631-1700), the poet, born on August 9, 1631, at Aldwinkle, in Northamptonshire, was of Cumberland stock, though his family had been settled for three generations in Northamptonshire, had acquired estates and a baronetcy, and intermarried with landed families in that county.

Dryden's education was such as became a scion of these respectable families of squires and rectors, among whom the chance contact with Erasmus had left a certain tradition of scholarship. His father, whose own fortune, added to his wife's, the daughter of the rector of Aldwinkle All Saints, was not large, and whose family, of whom the poet was the eldest, amounted to fourteen, procured him admission to Westminster School as a king's scholar, under the famous Dr. Busby. Some elegiac verses which Dryden wrote there on the death of a young Lord Hastings, in 1649, had the distinction of being published in a volume called *Lacrymæ Musarum*, among other elegies by "divers persons of nobility and worth" in commemoration of the same event. He appeared soon after again in print, among writers of commendatory verses to a friend of his, John Hoddesdon, who published a little volume of religious poetry in 1650. Dryden's contribution is signed "John Dryden of Trinity C." he having gone up from Westminster to Cambridge in May, 1650. He was elected a scholar of Trinity on the Westminster foundation in October of the same year, and took his degree of B.A. in 1654. His father died in 1654, leaving him master of two-thirds of a small estate near Blakesley, worth about £60 a year. The next three years he is said to have spent at Cambridge.

The middle of 1657 is given as the date of his leaving the university to take up his residence in London. In one of his many subsequent literary quarrels, it was said by Shadwell that he had been clerk to Sir Gilbert Pickering, his cousin, the favorite of Cromwell; and nothing could be more likely than that he obtained some employment under his powerful cousin when he came to London. He first emerged from obscurity with his *Heroic Stanzas* to the memory of the Protector, who died September 3, 1658. The poem is an academic exercise, and it seems to be animated by an undercurrent of strong contumacious protest against the irregularities tolerated by the authorities. Dryden had studied the ancient classics for himself, and their method of uniformity and elaborate finish commended itself to his robust and orderly mind. In itself the poem is a magnificent tribute to the memory of Cromwell. Now that the glittering style of the so-called "metaphysical poets" has gone very far

out of fashion, it requires an effort, a deliberate dismissal of prejudice, to enjoy such a poem. A poet writing now on such a man would present his grandeur in a much more direct and simple way. Yet judged in the spirit of its own style, Dryden's is a noble poem. Bustle, intrigue, and coarsely humorous dialogue seemed to him to be part of the popular demand; and, looking about for a plot, he found something to suit him in a Spanish source, and wrote *The Wild Gallant*. The play was acted in February, 1663, by Killigrew's company in Vere Street. It was not a success, although the most farcical incident received a certain interest and probability from a story which was current at the time. Dryden took a lesson from the failure of *The Wild Gallant*; his next comedy, *The Rival Ladies*, also founded on a Spanish plot, produced before the end of 1663, was correctly described by Pepys as "a very innocent and most pretty witty play," though there was much in it which the taste of our time would consider indelicate.

After the production of *The Rival Ladies*, in 1663, Dryden assisted Sir Robert Howard in the composition of a tragedy in heroic verse, *The Indian Queen*, produced with great splendor in January, 1664. It was probably through this collaboration that Dryden made the acquaintance of Lady Elizabeth Howard, Sir Robert's sister, whom he married on December 1, 1663. Lady Elizabeth's reputation was somewhat compromised before this union, and, though she brought some small addition to the poet's income, she does not seem to have added to his happiness. *The Indian Queen* was a great success, one of the greatest since the reopening of the theaters. This was in all likelihood due much less to the heroic verse and the exclusion of comic scenes from the tragedy than to the magnificent scenic accessories—the battles and sacrifices on the stage, the aerial demons singing in the air, and the god of dreams ascending through a trap. The novelty of these Indian spectacles, as well as of the Indian characters, with the splendid Queen Zempoalla, acted by Mrs. Marshall in a real Indian dress of feathers presented to her by Mrs. Aphra Behn, as the center of the play, was the chief secret of the success of *The Indian Queen*. These melodramatic properties were so marked a novelty that they could not fail to draw the town. The heroic verse formed but a small ingredient in the play; still, being also a novelty which had just been introduced by Davenant in *The Siege of Rhodes*, it interested the scholarly part of the audience, and so helped to consolidate the success of the stage carpenter. Dryden was tempted to return to tragedy: he followed up *The Indian Queen* with *The Indian Emperor*, which was acted in 1665, and also proved a success.

During the Great Plague, when the theaters were closed, and Dryden was living in the country at the house of his father-in-law, the Earl of Berkshire, he occupied a considerable part of his time in thinking over the principles of dramatic composition, and threw his meditations and conclusions into the form of a dialogue, which he called an *Essay of Dramatic Poetry*, and published in 1668. One of the main topics of the essay was the admissibility of rhyme in serious plays, Dryden making Neander, the interlocutor who represents himself, repeat with fresh illustrations all that he had said in its favor. By this time, however, Sir R. Howard, his brother-in-law, whom he had joined in writing the rhymed *Indian Queen*, had changed his mind about the heroic couplet, and made some offensive comments on Dryden's essay in a hoity-toity preface to *The Duke of Lerna*. Dryden at once replied to his brother-in-law in a master-piece of sarcastic retort and vigorous reasoning, publishing his reply as a preface to *The Indian*

Emperor. It is the ablest and most complete statement of his views about the employment of rhymed couplets in tragedy.

Before his return to town, at the end of 1666, when the theaters were reopened, Dryden wrote a poem on the Dutch War and the Great Fire, entitled *Annus Mirabilis*.

From the reopening of the theaters in 1666, till November, 1681, the date of his *Absalom and Achitophel*, Dryden produced nothing but plays. The stage was his chief source of income. *Secret Love, or the Maiden Queen*, a tragi-comedy, produced in March, 1667, does not come up to our expectations as the first-fruit of the author's rest from composition and prolonged study of dramatic art. It is noticeable that only the more passionate parts of the dialogue are rhymed, Dryden's theory apparently being that rhyme is then demanded for the elevation of the style. His next play, *Sir Martin Mar-all*, an adaptation from Molière's *L'Etourdi*, was produced at the Duke's Theater, in the name of the Duke of Newcastle. It was about this time that Dryden became a retained writer under contract for the King's Theater, receiving from it £300 or £400 a year, till it was burnt down in 1672, and about £200 for six years more till the beginning of 1678. If *Sir Martin Mar-all* was written but not produced before this contract was entered into, one can understand why it was announced as the Duke of Newcastle's. His coöperation with Davenant in a new version of Shakespeare's *Tempest*—for his share in which Dryden can hardly be pardoned on the ground that the chief alterations were happy thoughts of Davenant's, seeing that he affirms he never worked at anything with more delight—must also be supposed to be anterior to the completion of his contract with the Theater Royal. The existence of the contract came to light from Dryden's non-fulfillment of its terms. He was engaged to write three plays a year, and he contributed only ten plays during the ten years of his engagement, finally exhausting the patience of his partners by joining in the composition of a play for the rival house. In adapting *L'Etourdi*, Dryden did not catch Molière's lightness of touch; his alterations go toward making the comedy into a farce. Perhaps all the more on this account *Sir Martin Mar-all* had a great run at the theater in Lincoln's Inn Fields. As we have said, there is always a certain coarseness in Dryden's humor, apart from the coarseness of his age,—a certain forcible roughness of touch which belongs to the character of the man. His *An Evening's Love, or the Mock Astrologer*, an adaptation from the younger Corneille produced at the King's Theater in 1668, seemed to Pepys "very smutty, and nothing so good as *The Maiden Queen* or *The Indian Emperor* of Dryden's making." Evelyn thought it foolish and profane, and was grieved "to see how the stage was degenerated and polluted by the licentious times." *Ladies à la Mode*, another of Dryden's contract comedies, produced in 1668, was "so mean a thing," Pepys says, that it was only once acted, and Dryden never published it. Of his other comedies, *Marriage à la Mode* (produced 1672), *Love in a Nunery* (1672), *Limberham, or the Kind Keeper*, only the first was moderately successful. The failure was not due to want of ribaldry.

While Dryden met with such indifferent success in his willing efforts to supply the demand of the age for low comedy, he struck upon a really popular and profitable vein in heroic tragedy. *Tyrannic Love, or the Royal Martyr*, a Roman play, in which St. Catherine is introduced, and with her some striking supernatural machinery, was produced in 1669. It is in rhymed couplets, but the author again did not trust solely for success to them; for, besides the magic incantations, the sing-

ing angels, and the view of Paradise, he made Nell Gwynne, who had stabbed herself as "Valeria," start to life again as she was being carried off the stage, and speak a riotously funny epilogue, in violent contrast to the serious character of the play. *Almansor and Almahide, or the Conquest of Granada*, a tragedy in two parts, appeared in 1670. It seems to have given the crowning touch of provocation to the wits, who had never ceased to ridicule the popular taste for these extravagant heroic plays. Dryden almost invited burlesque in his epilogue to *The Conquest of Granada*, in which he charged the comedy of the Elizabethan age with coarseness and mechanical humor, and its conceptions of love and honor with meanness, and claimed for his own time and his own plays an advance in these respects. *The Rehearsal*, written by the Duke of Buckingham, with the assistance, it was said, of Clifford, Sprat, and others, and produced in 1671, was a severe and just punishment for this boast. Dryden is here unmercifully ridiculed under the name of "Bayes," he having obtained the laureateship from the king (with a pension of £300 a year and a butt of canary wine) in 1670. It is said that *The Rehearsal* was begun in 1653 and ready for representation before the Plague. But this probably only means that Buckingham and his friends were so tickled with the absurdities of Davenant's operatic heroes in *The Siege of Rhodes*, and the extravagant heroics of *The Indian Queen*, that they resolved to burlesque them. Materials accumulated upon them as the fashion continued, and by the time Dryden had produced his *Tyrannic Love*, and his *Conquest of Granada*, he had so established himself as the chief officer as to naturally become the center of the burlesque. It is commonly said that Dryden passed over the attack on himself without reply, either because he admitted its justice or because he feared to offend the king's favorite. But this is not strictly so; his reply is contained in the dedication and preface to his *Conquest of Granada*; and his prose defense of the epilogue was published in 1672, in which, so far from laughing with his censors, he addresses them from the eminence of success, saying that "with the common good fortune of prosperous gamesters he can be content to sit quietly."

Dryden's reply to *The Rehearsal* was lofty and firm. But though he put a bold face on a practice which it is but fair to suppose that he adopted only to supply a popular demand, he did not write many more heroic plays in rhyme. Perhaps the ridicule of *The Rehearsal* had destroyed their popularity. His next tragedy, *Amboyna*, an exhibition of certain atrocities committed by the Dutch on English merchants in the East Indies, put on the stage to inflame the public mind in view of the Dutch war, was written, with the exception of a few passages, in prose, and those passages in blank verse.

If Dryden had died in 1676, at the age of forty-five, he would have left a very inconsiderable name behind him. The fray between him and Settle might have been looked upon as a passage at arms between equals. After the production of *Aurenzebe* he seems to have rested for an interval from writing, enabled to do so, probably, by an additional pension of £100 granted to him by the king. During this interval he would seem to have reconsidered the principles of dramatic composition, and to have made a particular study of the works of Shakespeare. The fruits of this appeared in *All for Love*, or *The World Well Lost*, a version of the story of Antony and Cleopatra, produced in 1678, which must be regarded as a new departure in his dramatic career, a very remarkable departure for a man of his age, and a wonderful proof of undiminished openness and pliability of mind. In his previous writings on dramatic

theory, Dryden, while admiring the rhyme of the French dramatists as an advance in art, did not give the same praise to the regularity of their plots; he was disposed to give the preference to the irregular structure of the Elizabethan dramatists, as being more favorable to variety both of action and of character. But now he abandoned rhyme, and, if we might judge from *All for Love*, and the precepts laid down in his *Grounds of Criticism in Tragedy*, the chief point in which he aimed at excelling the Elizabethans was in giving greater unity to his plot. He upheld still the superiority of Shakespeare to the French dramatists in the delineation of character, but he thought that the scope of the action might be restricted, and all parts bound more closely together with advantage. *All for Love* and *Antony and Cleopatra* are two excellent plays for the comparison of the two methods. Dryden gave all his strength to *All for Love*, writing the play for himself, as he said, and not for the public.

It was twelve years before Dryden produced another tragedy worthy of the power shown in *All for Love*. *Don Sebastian* was acted and published in 1690. In the interval, to sum up briefly Dryden's work as a dramatist, he wrote *Ædipus* (1678) and *The Duke of Guise* (1683) in conjunction with Lee; *Troilus and Cressida*, 1679; *The Spanish Friar*, 1681; *Albion and Albanus*, an opera, 1685; *Amphitryon*, 1690. In *Troilus and Cressida* he follows Shakespeare closely in the plot, but the dialogue is rewritten throughout, and not for the better. The versification and the language of the first and the third acts of *Ædipus*, which with the general plan of the play were Dryden's contribution to the joint work, bear marked evidence of his recent study of Shakespeare. The plot of *Don Sebastian* is more intricate than that of *All for Love*. It has also more of the characteristics of his heroic dramas; the extravagance of sentiment and the suddenness of impulse remind us occasionally of *The Indian Emperor*; but the characters are much more elaborately studied than in Dryden's earlier plays, and the verse is sinewy and powerful. It would be difficult to say whether *Don Sebastian* or *All for Love* is his best play; they share the palm between them. Dryden's subsequent plays are not remarkable. Their titles and dates are—*King Arthur*, an opera, 1661; *Cleomenes*, 1692; *Love Triumphant*, 1694.

Soon after Dryden's abandonment of heroic couplets in tragedy, he found new and more congenial work for his favorite instrument in satire. As usual the idea was not original to Dryden, though he struck in with his majestic step and energy divine, and immediately took the lead. His pioneer was Mulgrave's *Essay on Satire*, an attack on Rochester and the court, circulated in 1679. Dryden himself was suspected of the authorship, and cudgelled by hired ruffians as the author; but it is not likely that he attacked the king on whom he was dependent for the greater part of his income. In the same year Oldham's satire on the Jesuits had immense popularity, chiefly owing to the excitement about the Popish plot. Dryden took the field as a satirist toward the close of 1681, on the side of the court, at the moment when Shaftesbury, baffled in his efforts to exclude the Duke of York from the throne as a papist, and secure the succession of the Duke of Monmouth, was waiting his trial for high treason. *Absalom and Achitophel* produced a great stir. Nine editions were sold in rapid succession in the course of a year. It was a new thing for the public to have the leading men of the day held up to laughter, contempt, and indignation under disguises which a little trouble enabled them to penetrate. There was no compunction in Dryden's ridicule and invective. Delicate wit was not one of Dryden's

gifts; the motions of his weapon were sweeping, and the blows hard and trenchant. The advantage he had gained by his recent studies of character was fully used in his portraits of Shaftesbury and Buckingham, Achitophel and Zimri. In these portraits he shows considerable art in the introduction of redeeming traits to the general outline of malignity and depravity. Against Buckingham Dryden had old scores to pay off, but he was too practiced in the language of eulogy and invective to need any personal stimulus. "Glorious John" had a mind superior to petty hatreds, as well as, it must be admitted, to petty friendships, and it is not impossible that the fact that his pension had not been paid since the beginning of 1680, weighed with him in writing this satire to gain the favor of the court. In a play produced in 1681, *The Spanish Friar*, he had written on the other side, gratifying the popular feeling by attacking the Papists.

Dryden's next poem in heroic couplets was in a different strain. On the accession of James, in 1685, he became a Roman Catholic. There has been much discussion as to whether this conversion was or was not sincere. It can only be said that the coincidence between his change of faith and his change of patron was suspicious, and that Dryden's character for consistency is certainly not of a kind to quench suspicion. The force of the coincidence cannot be removed by such pleas as that his wife had been a Roman Catholic for several years, or that he was converted by his son, who was converted at Cambridge, even if there were any evidence for these statements. Scott defended Dryden's conversion, as Macaulay denounced it, from party motives; on any other grounds, it is not worth discussing. Nothing can be clearer than that Dryden, all his life through regarded his literary powers as a means of subsistence, and had little scruple about accepting a brief on any side. *The Hind and Panther*, published in 1687, is an ingenious argument for Roman Catholicism, put into the mouth of "a milk-white hind, immortal and unchanged." There is considerable beauty in the picture of this tender creature, and its enemies in the forest are not spared. One can understand the admiration that the poem received when such allegories were in fashion. It was the chief cause of the veneration with which Dryden was regarded by Pope, who, himself educated in the Roman Catholic faith, was taken as a boy of twelve to see the veteran poet in his chair of honor and authority at Will's coffee-house.

Dryden did not abjure his new faith on the Revolution, and so lost his office and pension as laureate and historiographer royal. For this act of constancy he deserves credit, if the new powers would have considered his services worth having after his frequent apostasies. His rival Shadwell reigned in his stead. Dryden was once more thrown mainly upon his pen for support. He turned again to the stage and wrote the plays which we have enumerated. A great feature in the last decade of his life was his translations from the classics. A volume of miscellanies published in 1685, had contained some translations from Virgil, Horace, Lucretius, and Theocritus. He now produced translations more deliberately as a saleable commodity. A volume of miscellanies, which appeared in 1693, contained translations from Homer and Ovid. In the same year he published a translation of the satires of Juvenal and Persius, written with the assistance of his two elder sons. Johnson passes on this work the just criticism that "though, like all other productions of Dryden, it may have shining parts, it seems to have been written merely for wages, in an uniform mediocrity." When Dryden took his farewell of the stage in 1694, he announced his intention of devoting himself to a trans-

lation of the whole of Virgil. On this he seems really to have labored, and great expectations were formed of it. It was published in 1697, and proved a great success. To judge it by its fidelity, as a reproduction of the original, would be to apply too high a standard, but it is an interesting rendering of Virgil into the style of Dryden, and, as a poem was read with delight in its own age. Soon after its publication, Dryden wrote one of his master-pieces, the second Ode on St. Cecilia's day. His next work was to render some of Chaucer's and Boccaccio's tales and Ovid's metamorphoses into his own verse. These translations appeared a few months before his death, and are known by the title of *Fables*. Thus a large portion of the closing years of Dryden's life were spent in translating for bread. He had a windfall of 500 guineas from Lord Abingdon for a poem on the death of his wife in 1691, but generally he was in considerable pecuniary straits. He is supposed to have received occasional presents from rich and powerful friends, but he never received anything from the court, and he was too proud to make advances. Besides, his three sons held various posts in the service of the Pope at Rome, and he could not well be on good terms with both courts. However, he was not molested in London by the government, and in private he was treated with the respect due to his old age and his admitted position as the greatest of living English poets. His death took place May 1, 1700.

DRY ROT, a disease in timber, apparently infectious, which occasions the destruction of its fibers, and reduces it eventually to a mass of dry dust. It is produced most readily in a warm, moist, stagnant atmosphere, while common or wet rot is the result of the exposure of wood to repeated changes of climatic conditions. In both diseases, however, a kind of spontaneous combustion or decomposition goes on in the wood; water, carbonic acid gas, and probably carbureted hydrogen are evolved, and a pulverulent substance, or humus, remains. Though the growth of fungi undoubtedly accelerates the progress of dry rot, it would seem that the true origin of the disease is the incipient decomposition of the sap in wood, and that by virtue of this decomposition the fungi obtain a nidus for their growth.

DU BARRY GOMARD DE VAUBERNIER, MARIE JEANNE, COUNTESS, mistress of Louis XV., was the daughter of Vaubernier, a clerk of the customs at Vaucouleurs, and was born there on August 19, 1746. She received little or no education, and, coming to Paris while yet very young, she entered the house of a "marchande de modes." She soon fell a victim to the temptations which there beset her, and lived as a courtesan under the name of Mlle. Lange. Her great and peculiar personal charms lead Jean, Count Du Barry to form the design of receiving her into his house, in order to make it more attractive to the dupes from whom, by gambling, he won money to furnish him with the means of dissipation. Her success surpassing his expectations, his hopes took a higher flight, and he presented her to Lebel, valet de chambre of Louis XV., with the intention that she should become the mistress of the king. In this she succeeded; but as the favor shown by Louis to a courtesan roused murmurs in the court and remonstrances from his ministers and the members of the royal family, Louis, who was too infatuated to remove her, met their wishes half-way by securing for her a nominal husband. Count Jean Du Barry was married himself, but his brother William offered himself for the ceremony, and after its performance the Countess Du Barry was presented at court on April 22, 1769. Her influence over the monarch was absolute until his death, and courtiers and ministers were in favor or disfavor

with him in exact accordance with her wishes. The Duc de Choiseul, who refused to acknowledge her, was disgraced in 1771; and the Duc d'Aiguillon, who had the reputation of being her lover, took his place, and in concert with her governed the monarch. The favor of Louis for the Countess Du Barry continued to estrange him from his children and from the most of the royal family, and this isolation induced him to build for her the magnificent mansion of Luciennes. At his death, in 1774, an order of his successor banished her to L'Abbaye-du-Pont-aux-Dames, near Meaux, but the queen interceding for her, the king in the following year gave her permission to reside at Luciennes with a pension. Having gone to England in 1792, to endeavor to raise money on her jewels, she was on her return accused before the Revolutionary Tribunal of having dissipated the treasures of the state, conspired against the republic, and worn, in London, "mourning for the tyrant." She was condemned to death December 7, 1793, and beheaded the same evening.

DUBLIN, a maritime county of Ireland, situated in the province of Leinster, and containing the Irish metropolis. It is bounded on the north by the County Meath, east by the Irish Sea, south by Wicklow, and west by Kildare and Meath. With the exception of Louth and Carlow, Dublin is the smallest county in Ireland. Its greatest length, is thirty-two miles, its greatest breadth, eighteen; and the area is 354 square miles, or 226,895 acres.

History.—It is stated by Ptolemy that the County Dublin was inhabited by the tribe of the Eblani, who dwelt for the most part in Meath County, but on their settling in Dublin, founded the city Eblana, now presumed to be Dublin. Later writers affirm that the Eblani were driven out by the Danes, who held sway until the battle of Clontarf (1014) resulted in the overturn of their power. When the English landed, the people to the north of the Liffey were known among the Irish as *Fingall*, or white foreigners, and those living south of the river were called *Dubhigall*, or black foreigners. The Rev. Cæsar Otway professed to be able to discern signs of the different races even as late as his day; but the modern observer will fail to catch any marks whereby different portions of the community may be distinguished.

In 1210, King John formed this district into a county, comprising the chief portion of country within the English pale. The limits of the country were, however, uncertain, and underwent many changes before they were fixed. Although so near the seat of government, 67,142 acres of profitable land were forfeited in the Rebellion of 1641, and 34,536 acres in the Revolution of 1688. In 1603 the boundaries were definitely marked, the country inhabited by the O'Tooles and the O'Byrnes being formed into the County of Wicklow. The absence of any considerable towns decreases the interest in Dublin County, and it has no historic fields to boast of. In 1867 the most formidable of the Fenian risings took place near the village of Tallaght, about seven miles from the city. The rebels, who numbered from 500 to 700, were found wandering at dawn, some by a small force of constabulary, who, having in vain called upon them to yield, fired and wounded five of them; but the great bulk of them were overtaken by the troops under Lord Strathnairn, who captured them with ease and marched them into the city.

Sir John Forbes, a distinguished Scotch physician, who visited Ireland in 1852, speaks thus of the county in his *Memoranda*: "Without leaving the County of Dublin, the antiquary would have no difficulty in finding numerous objects of interest and instruction, casting light upon the early history of the country. Among the

ancient raths, duns, or forts constructed by the native Irish or the Danes, and more probably by both people, for defence or security in positions of natural strength, improved by art and labor, several remain in this county. One at Raheny, although much reduced in its proportions, is still traceable; several yet more imperfect are faintly visible at Coolock; one near Lucan is furnished with the subterranean vaults and passages not unusually found in connection with the larger specimens; and another at Shankhill or Rathmichael, near the remarkable natural pass through the mountain called the Scalp, is of greater extent than the others, more commanding in position, and in close proximity to the ancient church, and supposed fragment of a round tower. Numerous sepulchral mounds of the same period also exist scattered throughout the county, occasionally somewhat similar in appearance to the raths, but generally smaller in extent, altogether artificial, and of conical form. Among its most interesting antiquities this county reckons three of the ancient round towers almost peculiar to Ireland—one at Swords, another at Lusk, forming one of the angles of the church steeple, and a third in the highest state of preservation at Clondalkin."

DUBLIN, the metropolis of Ireland, in the county of Dublin and province of Leinster, is a county in itself, and a municipal and parliamentary borough; the area of the former is 3,808 acres. It is distant 292 miles west-northwest from London, 138 miles west from Liverpool, and sixty miles west from Holyhead, and is situated in the great central limestone district which stretches across from the Irish Sea to the Atlantic Ocean, on the River Liffey, extending to the junction of that river with the Bay of Dublin, the waters of which wash its south suburban shores.

In the reign of James II. the population of Dublin was 64,483; in 1728 it had more than doubled; in 1753 it was 161,000; in 1798 Whitelaw estimated it at 182,000; according to the first census (taken in 1821) it was 185,881; it was 232,726 in 1841, 254,808 in 1861, and 246,326 in 1871. This last decrease is due to the recent increase in wealth and the consequent extra-city residence of the traders and merchants. The suburbs of Dublin have wonderfully improved within the past twenty years, and constitute at present the chief of the many attractions which the stranger is wont to admire. The outlying townships of Rathmines and Rathgar, Kingstown and Pembroke, Clontarf and Dalkey, are all inhabited by persons engaged in the commerce of the city. If we include these populations, the city may be said to contain about 330,000 souls. The parliamentary borough, whose limits are more extensive than those of the municipal borough, covers an area of 5,501 acres, and contained, in 1871, a population of 267,717 persons. It returns two members to the imperial parliament.

DUBNO, a town in European Russia, at the head of a department in the government of Volhynia, 154 miles west of Zhitomir. Occupying a peninsula formed by the River Ivka, it is almost surrounded by water and marsh; and in its eastern corner it is defended by a somewhat dilapidated citadel, separated by dry ditches from the rest of the town.

DUBOFKA, a burgh in European Russia, in the government of Saratoff, about thirty-two and one-half miles to the north-northwest of Tsaritzin, on the right bank of the Volga, near its reception of the River Dubofka, and on the post-road to Astrakhan.

DUBOIS, GUILLAUME, cardinal, archbishop of Cambray, and first minister of France, was born at Brives-la-Gaillarde, in Limousin, September 6, 1656. He was the son of an apothecary, and at twelve years of age was

sent to Paris to study in the college of St. Michael, where he at the same time served in the household of the principal. He then engaged himself as a private tutor, and at length was appointed preceptor to the young Duke of Chartres, afterward the regent Duke of Orleans. Astute, ambitious and unrestrained by conscience, Dubois ingratiated himself with his pupil, and, while he gave him formal school lessons, at the same time pandered to his evil passions, and encouraged him in their indulgence. He gained the favor of Louis XIV. by bringing about the marriage of his pupil with Mademoiselle de Blois, a natural but legitimated daughter of the king; and for this service he was rewarded with the gift of the abbey of St. Just in Picardy. He was present with his pupil at the battle of Steinkirk, and "faced fire," says Marshal Luxembourg, "like a grenadier." Sent to join the French embassy in London, he made himself so active that by the request of the ambassador he was recalled. When the Duke of Orleans became regent (1715), Dubois, who had for some years acted as his secretary, was made councillor of state, and the chief power passed gradually into his hands. His ambition grew with what it fed on. To counteract the intrigues of Cardinal Alberoni, first minister of Spain, he suggested an alliance with England, and succeeded in negotiating the Triple Alliance (1717). He was now made minister of foreign affairs. But he coveted the chief dignities of the church no less than political offices; and he impudently prayed the regent to give him the archbishopric of Cambray, the richest in France. His demand was supported by George I., and the regent yielded. In one day all the usual orders were conferred on him, and even the great preacher Massillon consented to take part in the ceremonies. His next aim was the cardinalate, and, after long opposition on the part of the Pope, Clement XI., the red hat was given to him by Innocent XIII. (1721). In the following year he was named first minister of France (August). He was soon after received at the French Academy; and, to the disgrace of the French clergy, he was named president of their assembly. While the projects of Law were bringing financial ruin upon the kingdom, Dubois was accumulating from various sources an immense private fortune. His health was ruined by his debaucheries, and a surgical operation became necessary. This was almost immediately followed by his death, at Versailles, August 10, 1723.

DUBOIS, a railroad and telegraph town of Pennsylvania, lying in Clearfield County, and having 8,000 inhabitants.

DUBOS, JEAN BAPTISTE (1670-1742), an eminent French author, was born at Beauvais.

DUBOSSARI, or **NOVIE DUBOSSARI**, a town of European Russia, in the government of Kherson, on the left bank of the Dniester, 101 miles from Odessa.

DUBROVNA, a town of European Russia, in the government of Mogileff, eleven miles east of Orsha, on the highway to Smolensk.

DUBUQUE, a city of the United States, capital of a county of the same name in Iowa, situated on the right bank of the Mississippi, 155 miles west of Chicago. The business portion occupies a terrace at no great height above the river, and the rest of the city is picturesquely arranged on the bluffs behind. Several of its fourteen churches, besides a so-called cathedral, are edifices of considerable pretensions; and the building erected by the United States for the custom-house, post-office, and other government purposes is constructed of marble. The principal educational institutions are the high school and a theological seminary for German Presbyterians. As a port of delivery, a railway junction, and the center of the lead region of Iowa, Dubuque has an extensive and varied trade, and engages in

a large number of manufacturing industries; of lead alone it exports from 10,000,000 to 20,000,000 lbs annually. The name of the city is derived from a French Canadian, who received permission from the Spanish Government to carry on mining in the vicinity, and settled on the spot in 1788. The first real settlement was in 1833; incorporation as a town was obtained in 1837, and a city charter in 1840. Population, in 1889, about 36,000.

DUCANGE, CHARLES DUFRESNE, SEIGNEUR (1610-1688), a most learned historical and philological writer, was born at Amiens.

DUCAS, MICHAEL, a Greek historian who flourished under Constantine XII., about 1450. The dates of his birth and death are unknown. He belonged to the illustrious family of his name that gave several emperors to Constantinople, and he is supposed to have held a high office at the court of Constantine XII. After the fall of Constantinople, he was employed in various diplomatic missions by the princes of Lesbos, where he had taken refuge. He was successful in securing a semi-independence for Lesbos until 1462, when it was taken and annexed to Turkey by Sultan Mahomet II. It is known that Ducas survived this event, but there is no record of his subsequent life. He is the author of a history beginning with the death of John Palaeologus I., and extending as far as the capture of Lesbos in 1462. There is a preliminary chapter of chronology from Adam to John Palaeologus I., which is almost certainly by a later hand. Although barbarous in style, the history of Ducas is both judicious and trustworthy, and it is the most valuable source for the close of the Greek Empire. The author seems to have possessed an intimate knowledge of the Turkish language.

DUCHESNE, ANDRÉ (Latin, **DUCHENIUS** or **QUERCETANUS**), a French geographer and historian, generally styled the father of French history, was born at Ile-Bouchard, in the province of Touraine, in May, 1534. He was educated at Loudun and afterwards at Paris, where he studied under Julius Cæsar Boulanger. From his earliest years he devoted himself to historical and geographical research, and his first work, *Egregiarum seu Selectarum Lectionum et Antiquitatum Liber*, dedicated to Boulanger, and published in his eighteenth year, displayed great erudition. He enjoyed the patronage of Cardinal Richelieu, a native of the same district with himself, through whose influence he was appointed historiographer and geographer to the king. He died in 1640, in consequence of having been run over by a carriage when on his way from Paris to his country house at Verrière. Duchesne's works were very numerous and varied, and some idea of his industry may be gathered from the fact that, in addition to what he published, he left behind him more than 100 folio volumes of manuscript extracts. Several of his larger works were continued by his only son François Duchesne (1616-1693), who succeeded him in the office of historiographer to the king. His *Lives of the French Cardinals and of the Saints of France* have been published by the Bollandists, Mabillon, and others. He published a translation of the *Satires*, of Juvenal, and editions of the works of Abelard, Alain Chartier, and Étienne Pasquier.

DUCIS, JEAN FRANÇOIS (August 22, 1733-March 31, 1816), a French dramatic poet, famous more especially for his adaptations of Shakespeare to the Parisian stage of the eighteenth century.

DUCK, the general name for a large number of birds forming the greater part of the family *Anatidæ* of modern ornithologists. Technically the term Duck is restricted to the female, the male being called Drake, and, in one species Mallard (Fr. *Mallard*).

The *Anatida* may be at once divided into six more or less well marked Subfamilies—(1) the *Cygnine* or Swans, (2) the *Anserine* or Geese—which are each very distinct, (3) the *Anatina* or Freshwater-Ducks, (4) those commonly called *Fuliginine* or Sea-Ducks, (5) the *Erismaturine* or Spiny-tailed Ducks, and (6) the *Mergine* or Mergansers. Of the *Anatina*, which may be considered the typical group, we propose to treat here only, and especially of the *Anas boschas* of Linnaeus, the common Wild Duck, which from every point of view is by far the most important species, as it is the most plentiful, the most widely distributed, and the best known—being indeed the origin of all our domestic breeds. It inhabits the greater part of the Northern Hemisphere, reaching in winter so far as the Isthmus of Panama in the New World, and in the Old being abundant at the same season in Egypt and India, while in summer it ranges throughout the Fur-Countries, Greenland, Iceland, Lapland, and Siberia.

DUCKWORTH, SIR JOHN THOMAS (1748–1817), admiral, was born at Leatherhead, in Surrey. In 1799 he was raised to the rank of rear-admiral, and sent to the West Indies to succeed Lord Hugh Seymour. During the voyage out he captured a valuable Spanish convoy of eleven merchantmen. In March, 1801, he was the naval commander of the combined force which reduced the islands of St. Bartholomew and St. Martin, a service for which he was rewarded with the order of the Bath and a pension of £1,000 a year. Promoted to be vice-admiral of the blue, he was appointed in 1804 to the Jamaica station. Two years later, while cruising off Cadiz with Lord Collingwood, he was detached with his squadron to pursue a French fleet that had been sent to the relief of St. Domingo. He came up with the enemy on February 6, 1806, and, after two hours' fighting, inflicted a signal defeat upon them, capturing three of their five vessels and stranding the other two. For this, the most distinguished service of his life, he received the thanks of the Jamaica Assembly, with a sword of the value of a thousand guineas, the thanks of the English Parliament, and the freedom of the City of London. In 1807 he was again sent to the Mediterranean to watch the movements of the Turks. In command of the *Royal George* he forced the passage of the Dardanelles, but sustained considerable loss in effecting his return, the Turks having strengthened their position. He held the command of the Newfoundland fleet for four years from 1810, and at the close of that period he was made a baronet. In 1815 he was appointed to the chief command at Plymouth, which he held until his death on April 14, 1817. Sir John Duckworth sat in Parliament for some time as member for New Romney.

DUCLOS, CHARLES PINEAU, a French author, was born at Dinant, in Brittany, in 1704. At an early age he was sent to study at Paris. After some time spent in dissipation he began to cultivate the society of the wits of the time, and became a member of that club or association of young men who published their joint efforts in light literature under the titles of *Recueil de ces Messieurs*, *Étrennes de la St. Jean*, *Ceufs de Piques*, etc. His romance of *Acajou and Zirphile*, which was composed after a series of plates which had been engraved for another work, was one of the fruits of this association, and was produced in consequence of a sort of wager amongst its members. Duclos had previously written two other romances, which were more favorably received—*The Baroness de Luz*, and the *Confessions of the Count de ****. His first serious publication was the *History of Louis XI.*, which is dry and epigrammatical in style, but displays considerable powers of research and impartiality. The reputation of Duclos as

an author was confirmed by the publication of his *Considérations sur les Mœurs*, a work which is much and justly praised by Laharpe, as containing a great deal of sound and ingenious reflection. It was translated into English and German. In consequence of his *History of Louis XI.*, he was appointed historiographer of France, when that place became vacant on Voltaire's retirement to Prussia. His *Secret Memoirs of the reigns of Louis XIV. and Louis XV.*, and his *Considérations on Italy*, were not published until after the Revolution. The former work is highly spoken of by Chamfort. Duclos became a member of the Academy of Inscriptions in 1739, and of the French Academy in 1747. Of the latter he was appointed perpetual secretary in 1755. Both academies were indebted to him not only for many valuable contributions, but also for several useful regulations and improvements.

DUDEVANT, ARMANTINE LUCILE AURORE, known to all the world as the second if not the greatest of French novelists, by her assumed name of George Sand, was born at Paris, July 5, 1804, and died June 8, 1876. Her life is as fantastic and eventful as any of her fictions, and the main secret of her success has been her power to clothe in artistic form her varied experiences of men and places.

Aurore was the daughter of Lieutenant Dupin and of his newly-married mistress Sophie Delaborde, the daughter of a Paris bird-fancier. Her paternal grandfather was M. Dupin de Francueil, a farmer-general of the revenue, who had married Mlle. Rinteanu, widow of Count Horn (a natural son of Louis XV.), and natural daughter of Marshall Saxe, the most famous of the many illegitimate children of Augustus the Strong by the lovely Countess of Königsmarck. This strange pedigree has been traced in detail by George Sand, and she recognizes it as one of the elements which went to mold her character. She boasts of the royal blood which she inherited through her father, and, disregarding the bar sinister, claims relationship with Charles X. and Louis XVIII., and she proclaims herself as frankly a daughter of the people, endowed by nature with the instincts of her class. Her birth itself was romantic. Her father was playing a country dance at the house of a fellow officer, the future husband of Sophie's sister, when he was told that his wife, who had not long left the room, had borne him a daughter. "She will be fortunate," said the aunt, "she was born among the roses to the sound of music."

Passing by her infantine recollections, which go back further than even those of Dickens, we find her at the age of three, crossing the Pyrenees to join her father who was on Murat's staff, occupying with her parents a suite of rooms in the royal palace, adopted as the child of the regiment, nursed by rough old sergeants, and dressed in a complete suit of uniform to please the general.

For the next ten years she lived at Nohant, near Le Château in Berri, the country house of her grandmother. Here her character was shaped; here she imbibed that passionate love of country scenes and country life which neither absence, politics, nor dissipation could uproot; here she learnt to understand the ways and thoughts of the peasants, and laid up that rich store of scenes and characters which a marvelously retentive memory enabled her to draw upon at will. The progress of her mind during these early years well deserves to be recorded. Education, in the strict sense of the word, she had none. A few months after her return from Spain her father was killed by a fall from his horse. He was a man of remarkable literary gifts as well as a good soldier, and his letters, which are included in her life, show in a less degree the vivid force of description and clear insight

into character, which he bequeathed to his daughter. "Character," says George Sand, "is in a great measure hereditary: if my readers wish to know me they must know my father." On his death the mother resigned, though not without a struggle, the care of Aurore to her grandmother, Mme. Dupin de Francueil, a good representative of the *ancien régime*. Though her husband was a patron of Rousseau, she herself had narrowly escaped the guillotine, and had only half imbibed the ideas of the Revolution. In her son's lifetime, she had, for his sake, condoned the *misalliance*, but it was impossible for the stately châtelaine and her low-born daughter-in-law to live in peace under the same roof. She was jealous as a lover of the child's affection, and the struggle between the mother and grandmother was one of the bitterest of Aurore's childish troubles.

Next to the grandmother, the most important person in the household at Nohant was Deschatre. He was an ex-abbe who had shown his devotion to his mistress when her life was threatened, and henceforward was installed at Nohant as factotum. He was maire of the village, he managed the estate, doctored the neighborhood, played piquet with Madame, was tutor to Aurore's half-brother, and, in addition to his other duties, undertook the education of the girl. The tutor was no more eager to teach than the pupil to learn.

In 1820 Aurore exchanged the restraint of a convent for freedom, being recalled to Nohant by Mme. de Francueil, who had no intention of letting her granddaughter grow up a *dévot*. She rode across country with her brother, she went out shooting with Deschatre, she sat by the cottage doors on the long summer evenings and heard the flax-dressers tell their tales of witches and warlocks. She read widely, though unsystematically, Aristotle, Leibnitz, Locke, Condillac, and fed her imagination with *René* and *Childe Harold*. Her confessor lent her the *Genius of Christianity*, and to this book she ascribes the first change in her religious views. She renounced once for all the asceticism and isolation of the *De Imitatione* for the more genial and sympathetic Christianity of Chateaubriand. Yet she still clung to old associations, and on her grandmother's death was about to return to her convent, but was dissuaded by her friends, who found her a husband in the person of M. Dudevant, a retired officer who had turned farmer. About her husband and her married life George Sand is discreetly reticent. It was a marriage, if not of love, yet of inclination, and the first years of her married life, during which her son and daughter, Maurice and Solange, were born, were at least calm and peaceful. Soon differences arose. Her husband seems to have been neither better nor worse than the Berrichon squires around him; but she found herself mated, if not to a clown, yet to a *hobereau* whose heart was in his farm and cattle. After nine years of passive endurance she determined to put an end to a connection which had grown intolerable, and in 1831 an amicable separation was agreed upon. Nohant was surrendered to the husband, and, taking her daughter with her, she went to seek her fortune in Paris with no provision but an allowance of £60 a year. After vain attempts to support herself by some of those expedients to which reduced gentlewomen are driven, as a last resource she tried literature. At this period she was living in a garret, often unable to afford the luxury of a fire. Repulsed by Balzac and Kératry, she found an employer in Delatouche, the editor of *Figaro*, and, like herself, a native of Berri. In her life she has done full justice to the rough honesty and jealous affection of her first critic, who treated her much as Dr. Johnson treated Fanny Burney. George Sand had neither the wit nor the piquancy to succeed

as a writer in *Figaro*, and at the end of a month her earnings amounted to fifteen francs. But there was on the same staff a young law student already known to her as a visitor at Nohant. With Jules Sandeau she entered into literary partnership, and under the name of Jules Sand there appeared a novel, their joint work, called *Rose et Blanche*. Her second novel was written independently, and the famous pseudonym, George Sand, was a compromise between Madame Dudevant, who wished to preserve the joint authorship, and Jules Sandeau, who disclaimed any share in the work. Nothing like *Indiana* had appeared before in French fiction. The public were wearied with the unreality of the fashionable historical novel, and the realistic humor of Paul de Kock. Balzac's earliest novels gave little promise of his future greatness. In the unknown writer they found one who combined the absorbing passion of Rousseau, the delicate picturesqueness of St. Pierre, and the wild grandeur of Chateaubriand, in a living picture of present times and manners. Like Byron she awoke one morning and found herself famous. Delatouche was the first to throw himself at her feet and bid her forget all the hard things he had said of her. Sainte-Beuve expressed the approval of the learned, and the public eagerly canvassed the secret of her name, sex, and history. *Valentine*, which appeared two months afterward, proved that *Indiana* was not, like so many first novels, a graphic rescript merely of the author's own emotions, but the beginning of an inexhaustible series, in which experience was the raw material woven by imagination and colored by fancy.

Her third novel, *Ellie*, marks the climax of her rebellion against society. It was written in a fit of deep depression, religious and political, and is a wild dithyramb, the passionate wail of a woman whose affections have been blighted, and whose jaundiced eyes see nothing but a lifeless, loveless, godless world. But like Goethe in his *Werther* she "rid her bosom of that perilous stuff" and, though once and again she inveighed against society, she never more lost faith in the moral government of the world.

Of her unfortunate relations with A. de Musset, and her voyage to Italy in his company, which followed the publication of *Ellie*, nothing need be said except as they affected her literary career. As the motives of *Indiana* and *Valentine* are an unhappy marriage, so the novels of this period (1833-1835), *Jacques, André*, and *Leone Leoni*, are the outcome of an unhappy liaison. Her creed, the opposite of Shakespeare's, is, that love must alter as it alteration finds, and that no ties are binding but the mutual passion of the hour. *Elle et lui* is a woman's version of the quarrel between a man and woman, and if true it ought never to have been told. The moral of the tale is worth giving in George Sand's own words, "God makes certain men of genius to wander in the tempest and to create in pain. I studied you in your light and in your darkness, and know that you are not to be weighed in the balance like other men." The measure she here metes to De Musset we may fairly measure to her again.

To this Italian journey we owe some of her most charming pictures of scenery. Venice was the only town she loved for itself, and it exercised over her the same fascination as over Byron, Shelley, and Goethe. The opening scenes of *Consuelo* are worthy to take rank with "Otway, Radcliffe, Schiller, Shakespeare's Art," with the 4th canto of *Childe Harold*, Shelley's *Lyrics*, and Goethe's *Venetian Epigrams*. The *Lettres d'un Voyageur* mark the calm which succeeded this Sturm und Drang period. They are specially valuable to the student of George Sand, as they give her views of men and things, not refracted and

distorted by the exigencies of a novel. In *Michel de Bourges* (the 'Edouard' of the letters) we make the acquaintance of another of those celebrated men who influenced for a time her life and writings. He conducted the suit which ended in a judicial separation from her husband (1836), and sought to convert her to the extreme republicanism of which he was the foremost advocate and defender. This Lovelace of politics laid siege to her intellect; as persistently as Richardson's hero (for nine mortal hours he declaimed to her, pacing to and fro before her hotel at Bourges, and at Paris he locked her into her own room that she might reflect at leisure on his suit), but though she coquetted with his communistic theories, her artist nature rebelled against his extravagant radicalism. She sought safety in flight, but *Mauprat*, which she published this year, bears marks of his influence. The *Lettres à Marcie*, of 1837, are a tribute to the broad and noble Catholicism of Lamennais, and an eloquent exposition of the doctrine of Christian resignation; but in *Spiridion* (1838) she returns to her proper creed, a philosophical theism founded on sentiment and unfettered by dogma. *Consuelo* (1844), and *Lucretia Floriani* (1847), were inspired by Chopin, whose declining health she tended for more than six years with motherly care. *Le Compagnon du Tour de France* (1840), and *Le Meunier d'Angibault* (1845), are echoes of the socialism of Pierre Leroux. She threw herself heart and soul into the Republican struggle of 1848, composed manifestoes for her friends, addressed letters to the people, and even started a newspaper. But her political ardor was short-lived; she cared little about forms of government, and, when the days of June dashed to the ground her hopes of social regeneration, she quitted once for all the field of politics and returned to her quiet country ways and her true vocation as an interpreter of nature, a spiritualizer of the commonest sights of earth and the homeliest household affections. In 1849 she writes from Berri to a political friend—"You thought that I was drinking blood from the skulls of aristocrats. No, I am studying Virgil and learning Latin!"

To a youth of storm and stress succeeded an old age so calm and happy that it has no history. For more than a quarter of a century she continued, year by year, to gladden the world by some new creation, and the last of her works, the posthumous *Contes d'une Grand-mère*, is as fresh and vigorous and far more beautiful than *Indiana*.

One of the greatest of English novelists seems, by the name she has adopted, to provoke comparison with George Sand. In psychological analysis and insight into the problems of modern life, she is at least her equal; in her range of knowledge, in self-control, and in practical common sense, she is greatly her superior; but in unity of design, in harmony of treatment, in that purity and simplicity of language so felicitous and yet so unstudied, in all those qualities which make the best of George Sand's novels master pieces of art, she is as much her inferior. George Eliot is a great moralist, a great teacher; George Sand, whatever we may think of her doctrine and her morality, is by universal consent a supreme artist.

She has stayed in many camps, and lent her pen to many causes, she has had many friends and many lovers, but to one cause only has she remained constant—the cause of human progress; and the only master in whose service she has never wearied is Art.

DUDLEY, a parliamentary and municipal borough of England, in a detached portion of the County of Worcestershire, surrounded by the County of Stafford. It lies in the center of the "Black Country," about

eight miles west-northwest of Birmingham, at a junction on the Great Western railway.

DUDLEY, EARLS OF. See NORTHUMBERLAND.

DUEL, a deadly combat between two persons. The word is used in two distinct senses—(1) the judicial combat, a form of trial which prevailed in the Middle Ages, ordained by law as a proof of guilt or innocence; and (2) the modern duel, a prearranged combat with deadly weapons between two private persons, to settle some private quarrel.

On the origin of the duel a vast amount of perverse ingenuity has been spent. Writers of the sixteenth and seventeenth centuries commonly begin their treatises with an account of the combats between David and Goliath, Hector and Achilles, the Horatii and Curiatii. By etymology it is true that *duellum* is the same word as *bellum*, and in this sense the origin of the duel must be traced to the earliest condition of society, when every man's hand was against his neighbor. But, in the specialized sense which the word now bears, the duel was a peculiar institution of comparatively recent origin, a local custom which never spread beyond the limits of civilized Europe. It is easily distinguished both from the casual affrays of savages and the set battles of the champions of contending nations. An account of the judicial duel will clearly show that it is the direct parent of the modern duel. In the year 501, Gondebald, king of the Burgundians, passed a law authorizing the wager of battle, and in the preamble he gives his reason for introducing this new form of trial. It is that his subjects may no longer take oaths upon uncertain matters, or forswear themselves upon certain. Here is one proof among many that the judicial duel was introduced to correct the abuses of compurgation by oath. Like the other ordeals which it superseded, it was a direct appeal to Heaven to vindicate truth and punish falsehood. Like them it was founded on the superstitious spirit of the age, but unlike them it addressed itself to the martial temper and personal prowess of the nobles. Other ordeals, such as the cross, the corsned, and the oath on the gospels, were in the hands of the clergy, and were manipulated by them in the interest of the Church or of themselves. In the wager of battle each man felt that his cause was in his own hands, and, though might was right, yet even this was better than the jugglery of priests. Nor, as Montesquieu has pointed out, was the trial so irrational as it would seem to modern eyes. Among a warlike people cowardice is a sign of other vices, vices which are most hateful and most prejudicial to a simple community, of meanness, lying, and fraud. It shows an indifference to public opinion, a neglect of the education of the day, which consisted mainly in the use of arms and warlike exercises. In a word, the law was neither better nor worse than the received morality of the time. From this jurisdiction none were exempt; women, minors, and ecclesiastics were required to appear by proxy; and adverse witnesses, and even the judge himself, were liable to be challenged to make good their words by force of arms. Those who are curious to observe the formalities and legal rules of a judicial combat will find them described at length in the twenty-eighth book of Montesquieu's *Esprit des Loix*. On these regulations he well remarks that, as there are an infinity of wise things conducted in a very foolish manner, so there are some foolish things conducted in a very wise manner. For our present purpose it is sufficient to observe the development of the idea of personal honor from which the modern duel directly sprang. In the ancient laws of the Swedes we find that if any man shall say to another, "You are not a man equal to other men," or "You have not the heart

of a man," and the other shall reply, "I am a man as good as you," they shall meet on the highway, and then follow the regulations for the combat. What is this but the modern challenge? By the law of the Lombards if one man call another *arga*, the insulted party might defy the other to mortal combat. What is *arga* but the *dummer Junge* of the German student? Beaumanoir thus describes a legal process under Louis le Débonnaire:—The appellant begins by a declaration before the judge that the appellee is guilty of a certain crime; if the appellee answers that his accuser lies, the judge then ordains the duel. Is not this the modern point of honor, by which to be given the lie is an insult which can only be wiped out by blood?

From Germany the trial by judicial combat rapidly spread to every country of Europe. In France it was first confined to criminal causes, but this restriction was removed by Louis IX., who made it legal in civil matters as well, with the one proviso, that in cases of debt the amount must exceed twelve deniers. By Philippe le Bel it was again confined in civil cases to questions of disputed inheritance, and forbidden altogether during the war between England and France. In 1385 a duel was fought, the result of which was so preposterous that even the most superstitious began to lose faith in the efficacy of such a judgment of God. A certain Jacques Legris was accused by the wife of Jean Carrouge of having introduced himself by night in the guise of her husband, and then abused her. A duel was ordained by the Parliament, which was fought in the presence of Charles VI. Legris was defeated and hanged on the spot. Not long after a criminal arrested for some other offense confessed himself to be the author of the outrage. No institution could long survive so open a confutation. Henceforward the duel in France ceases to be an appeal to Heaven, and becomes merely a satisfaction of wounded honor. The last instance of a duel authorized by the magistrates, and conducted according to the forms of law, was the famous one between François de Vivonne de la Châtaignerie and Guy Chabot de Jarnac. The duel was fought on July 10, 1547, in the court-yard of the château of St. Germain-en-Laye, in the presence of the king and a large assembly of courtiers. It was memorable in two ways. It enriched the French language with a new phrase; a sly and unforeseen blow, such as that by which De Jarnac worsted La Châtaignerie has since been called a *coup de Jarnac*. And Henry, grieved at the death of his favorite, swore a solemn oath that he would never again permit a duel to be fought. This led to the first of the many royal edicts against duelling.

In England, it is now generally agreed that the wager of battle did not exist before the time of the Norman Conquest. Some previous examples have been adduced, but on examination they will be seen to belong rather to the class of single combats between the champions of two opposing armies. By the laws of William the Conqueror the trial by battle was only compulsory when the opposite parties were both Normans, in other cases it was optional. As the two nations were gradually merged into one, this form of trial spread, and until the reign of Henry II., it was the only mode for determining a suit for the recovery of land. The judicial duel never took root in England as it did in France. In civil suits it was superseded by the grand assize of Henry II., and in cases of felony by indictment at the prosecution of the Crown. One of the latest instances occurred in the reign of Elizabeth, 1571, when the lists were actually prepared and the justices of the common pleas appeared at Tothill Fields as umpires of the combat. Fortunately the petitioner failed to put in an appearance and was consequently nonsuited.

As a complete history of duelling would far exceed the limits of this article, we have preferred to trace in some detail its rise and fall in the country where it has most prevailed.

Any formal discussion of the morality of duelling is, in America at least, happily superfluous. No fashionable vice has been so unanimously condemned both by moralists and divines.

DUFOR, WILLIAM HEINRICH, a Swiss general, director of the topographical survey of Switzerland, was born at Constance, of Genevese parents temporarily in exile, on September 15, 1787. During his early studies at Geneva he showed no special capacity, and he took a low place in the entrance examination to the École Polytechnique at Paris, to which he went in 1807. By two years' close study he so greatly improved his position that he was ranked among the first in the exit examination. Immediately on leaving the school he received a commission in the engineers, and was sent to serve in Corfu, which was blockaded by the English. During the Hundred Days he attained the rank of captain, and was employed in raising fortifications at Grenoble for its defense against the Austrians. After the peace that followed Waterloo he retired from the French army on half-pay, and resumed his status as a Swiss citizen. Refusing the offer of a command at Briançon on condition that he would again adopt the French nationality, he devoted himself to the military service of his native land. From 1819 to 1830, he was chief instructor in the military school of Thoun, which had been founded mainly through his instrumentality. Among other distinguished foreign pupils he had the honor of instructing Prince Louis Napoleon, afterward emperor of the French. In 1827 he was raised to the rank of colonel, and commanded the Federal army in a series of field manoeuvres. In 1831 he became chief of the staff, and soon afterward he was appointed quartermaster-general. The most important work of his life was commenced in 1833, when the Diet commissioned him to superintend the execution of a trigonometrical survey of Switzerland. He had already proved his fitness for the task by making a cadastral survey of the canton of Geneva, and publishing a map of the canton in four sheets on the scale of 25000. The larger work occupied thirty-two years, and was accomplished with complete success. The map in twenty-five sheets on the scale of 100000 was published at intervals between 1842 and 1865, and is an admirable specimen of cartography. In recognition of the ability with which Dufour had carried out his task, the Federal Council, in 1868, ordered the highest peak of Monte Rosa to be named Dufour Spitze. In 1847 Dufour received the command of the Federal Army, which was employed in reducing the revolted Catholic cantons to submission. The quickness and thoroughness with which he performed the painful task, and the wise moderation with which he treated his vanquished fellow-countrymen, were acknowledged by a gift of 60,000 francs from the Diet, and various honors from different cities and cantons of the confederation. In politics he belonged to the moderate conservative party, and he consequently lost a good deal of his popularity in 1848. In 1864 he presided over the International Conference which framed the so-called Geneva Convention as to the treatment of the wounded in time of war, etc. He died on July 14, 1875.

DUFRENOY, PIERRE ARMAND, geologist and mineralogist, was born at Sevran, in the department of Seine-et-Oise, in France, in 1792, and died March 20, 1857.

DUFRESNY, CHARLES RIVIÈRE (1648-1728), a French dramatist, better remembered by the comedy of his own life than by any of the numerous plays which

he contributed to the Théâtre Italien and the Théâtre Français. The fact that his grandfather was an illegitimate son of Henry IV. procured him the liberal patronage of Louis XIV., who not only gave him the post of *valet de chambre*, but affixed his name now to one lucrative privilege and now to another. The *protégé*, however, appeared as eager to squander as the king was to bestow; and the pathetic confession of exhausted generosity—"I cannot enrich Dufresny"—was probably taken by the careless spendthrift as a signal compliment; though to one of his friends who consoled him with the remark that poverty is no sin, he replied, "*It is worse.*" On Louis' death he was almost as necessitous as if Louis had never lived; but he obtained 200,000 francs from the Duke of Orleans in answer to an ingenious request that his highness, for his own glory, would leave Dufresny in his excessive indigence as a sole example of the condition of the whole kingdom before the golden days of his regency. As if to furnish a piquant commentary on the proverb that poverty makes us acquainted with strange bed-fellows, he married his washerwoman in discharge of her bill—a whimsicality which supplied Le Sage with an episode in the *Diable Boiteux*, and was made the subject of a comedy by J. M. Deschamps—*Charles Rivière Dufresny, ou le mariage imprévu*. Clever, versatile, and superficial, he obtained in his own day a considerable reputation, not only as an author and a wit, but also as a landscape gardener and architectural designer; to his great patron he furnished plans for the park at Versailles, and was appointed in return overseer of the royal grounds. He died at Paris, in 1728, in a house—*la maison de Plin*—which he had built with the regent's bounty. His plays, destitute for the most part of all higher qualities, but abounding in sprightly wit and pithy sayings, are no longer acted; though a few of the many in the six volumes of his *Théâtre* (Paris, 1731) are still read.

DUGDALE, SIR WILLIAM, an eminent English antiquary, the only son of John Dugdale, who belonged to an old Lancashire family, but had sold his property in that county and bought the estate of Shustoke, near Coleshill, in Warwickshire, was born on September 12, 1605. His inclination to the study of antiquities manifested itself at an early age, and received its first encouragement from Samuel Roper, a barrister of Lincoln's Inn. After his settlement at Blyth Hall, he made the acquaintance of some gentlemen interested in antiquities, who enabled him to obtain a sight of the old "deeds and evidences" of the county families of Warwickshire, and "divers antient writings of consequence," with the view of his writing a history of that county. In 1635 he accompanied Sir Simon Archer to London, and was by him introduced to Sir Henry Spelman, which led to his acquaintance with Thomas, Earl of Arundell, then earl marshal of England, by whom he was, in 1638, created a pursuivant of arms extraordinary by the name of Blanche Lyon, and in 1639 rougecroix pursuivant in ordinary. About this time he agreed to write his work on *Monastery Foundations*, and, having a lodging in the Herald's Office, he now spent much of his time in London in order to augment his collections out of the records of the Tower and other places in the city. In 1641 Sir Christopher Hatton, a member of the House of Commons, dreading the near approach of the revolutionary storm which soon thereafter broke over England, and the ruin that might then ensue, got him to make exact drafts of all the monuments in Westminster Abbey and the principal churches in England, including Peterborough, Ely, Norwich, Lincoln, Newark, Beverley, Southwell, Kingston-upon-Hull, York, Selby, Chester, Lichfield, Tam-

worth, and Warwick. He received and obeyed, in June, 1642, the summons of Charles I. to attend him at York, whither, on the outbreak of the revolution, the king had betaken himself for the sake of greater security. Learning the spread of the revolution in Warwickshire, Charles deputed him to summon to surrender the castle of Banbury, in Oxford, and the castle of Warwick, which were being rapidly filled with ammunition and rebels. Banbury obeyed, but Warwick, being better prepared, contemned the summons and its inmates were proclaimed traitors. He also summoned the city of Coventry; and, accompanying Sir Richard Willys as guide, he was present at the battle of Cudworth Field, the result of which he communicated to the king. He remained at Oxford with the king till the surrender of the garrison in 1646, and witnessed the battle of Edgehill, of the field of which he made afterward an exact survey, noting how the armies were drawn up, and where and in what direction the various movements took place, and marking the graves of the slain. In November, 1642, he was admitted M.A. of the university, and in 1644 the king created him Chester-Herald. While at Oxford he made a journey to Worcester, where—with the purpose of increasing his collections for his history of Warwickshire—he perused the registers of the bishop and of the dean and chapter; and during his Oxford leisure he applied himself also to the search for antiquities in the libraries and in the private houses. When Oxford surrendered he continued his antiquarian researches in London, along with Richard Dodsworth, for their joint work on the monasteries, which was published successively in single volumes in 1655, 1664, and 1673. At the Restoration he obtained the office of Norroy king-at-arms, and in 1677 was created garter principal king-at-arms, and was knighted. He died at Blyth Hall, February 10, 1686.

DUGONG, a genus of herbivorous Cetacea, forming, along with the Sea-Cows (*Manatus*), and the now extinct *Rhytina*, the sub-order Sirenia. In this genus the head is small, and is abruptly truncated in front, the snout being remarkably obtuse and furnished with bristles. The intermaxillary bones are enormously developed, and from these proceed two large incisor teeth or tusks, which are well developed in the male, but which in the female are arrested in their growth, and remain concealed beneath the surface. There are never more than five molar teeth on each side of either jaw, or twenty in all, and these are flat on the grinding surface. The flippers are unprovided with nails, and the tail is broad, and differs from that of the manatee in being crescent-shaped instead of rounded. The bones are very hard and firm, and take a polish equal to that of ivory. The dugongs frequent the shallow waters of the tropical seas, extending from the east coast of Africa north of the mouth of the Zambesi River, along the shores of the Indian, Malayan, and Australian seas, where they may be seen basking on the surface of the water, or browsing on submarine pastures of *Alga Fuci*, for which the thick obtuse lips and truncated snout preëminently fit them. They are gregarious, feeding in large numbers in localities where they are not often disturbed.

DUGUAY-TROUIN, RENÉ, a famous French admiral, was the son of a sea captain, and was born at St. Malo, June 10, 1673. He was originally intended for the church, and studied with that view at Rennes and Caen, but on the breaking out of the war with England and Holland, in 1689, he obtained leave to enter the marine. Accordingly he embarked in the capacity of a volunteer on board a small vessel of eighteen guns, equipped by his family, and during the first three months his courage was tried by a violent tempest, an imminent shipwreck, the boarding of an English ship, and the

threatened destruction of his own vessel by fire. The following year, as a volunteer in a vessel of twenty-eight guns, he carried off the honors in a bloody combat with an English fleet of five merchant vessels. The courage he then showed was so remarkable that, in 1691, at the age of eighteen, he obtained the command of a frigate of fourteen guns, when, having been thrown by a tempest on the coast of Ireland, he burned two English ships in the River Limerick. In 1694 his vessel of forty guns was captured by the English, and, being taken prisoner, he was confined in the castle of Plymouth, where, however, he made love to the daughter of the jailer, and by her aid managed to escape. He then obtained command of a vessel of forty-eight guns, and made a capture of English vessels on the Irish coast. In 1696 he made a brilliant capture of Dutch vessels, and the king hearing an account of the affair raised him, in 1697, to the rank of captain of a frigate. In 1704–5 he desolated the coasts of England. In 1706 he was raised to the rank of captain of a vessel of the line. In 1707 he was made chevalier of the order of St. Louis, and captured the greater part of an English convoy of troops and munitions bound for Portugal. His most glorious action was the capture, in 1711, of Rio Janeiro, on which he imposed a heavy contribution. In 1715 he was made chief of a squadron, and in 1728 commander of the order of St. Louis and lieutenant-general. In 1731 he commanded a squadron for the protection of French commerce in the Levant. He died September 27, 1736.

DU GUESCLIN, BERTRAND, constable of France, the most famous French warrior of his age, was born of an ancient but undistinguished family, at the castle of La Motte-Broon, near Rennes, about 1314. The date is doubtful, the authorities varying between 1311 and 1324. The name is spelt in various ways in contemporary records, *e.g.*, Claquin, Klesquin, Guesquin, Glayaquin, etc. The familiar form is found on his monument at St. Denis, and in some legal documents of the time. In his boyhood Bertrand was a dull learner, spending his time in open air sports and exercises, and could never read or write. He was remarkable for ugliness, and was an object of aversion to his parents. He first made himself a name as a soldier at the tournament held at Rennes in 1338, to celebrate the marriage of Charles of Blois with Jeanne de Penthievre, at which he unseated the most famous competitors. But this playing at fighting was not enough for his ambition; and in the war which followed between Charles of Blois and John de Montfort, for the possession of the duchy of Brittany, he served his apprenticeship as a soldier. As he was not a great baron with a body of vassals at his command, he put himself at the head of a band of adventurers, and fought on the side of Charles and of France. He distinguished himself by a brilliant action at the siege of Vannes in 1342; and after that he disappears from history for some years. In 1351, having shortly before been made a knight, he was sent into England with the lords of Brittany to treat for the ransom of Charles of Blois, who had been defeated and captured by the English in 1347. When Rennes was besieged by the Duke of Lancaster, in 1356, Du Guesclin forced his way with a handful of men into the town, and successfully defended it till June, 1357, when the siege was raised in pursuance of the truce of Bordeaux. For this service he was rewarded with the lordship of Roche d'Aerien. At the expiration of the truce he distinguished himself by the defense of Dinan, and here he engaged in single combat with Sir Thomas Canterbury. Shortly afterward he married; and about the same time he passed into the service of France, and greatly distinguished himself at the siege of Melun (1359). In April, 1364, in conjunction with Bouci-

caut, he recovered Mantes and Meulan from the King of Navarre; and in May he defeated the Navarrese under Capital de Buch, at Cocherel, and took their leader prisoner. The king now created him Marshal of Normandy and Count of Longueville. At the battle of Auray, in September of the same year, Charles of Blois was defeated and killed, and Du Guesclin taken prisoner, by Sir John Chandos. The grand companies beginning after the close of the war to play the part of brigands in France, it was necessary to get rid of them. Du Guesclin was ransomed for 100,000 crowns, and was charged to lead them out of France. He marched with them into Spain, visiting Avignon on the way, and extorting from the Pope a large sum of money and his absolution. Du Guesclin now supported Henry of Trastamare against Peter the Cruel, set the former upon the throne of Castille (1366), and was made constable of Castille and Count of Trastamare. In the following year he was defeated and captured by the Black Prince, ally of Peter the Cruel, at Najara, but was soon released for a heavy ransom. Once more he fought for Henry, reinstated him on the throne (1369), and was created Duke of Molinas. In May, 1370, at the command of Charles V., who named him constable of France, he returned to France. War had just been declared against England, and Du Guesclin was called to take part in it. For nearly ten years he was engaged in fighting against the English in the south and west of France, recovering from them the provinces of Poitou, Guienne, and Auvergne, and thus powerfully contributing to the establishment of a united France. In 1373, when the Duke of Brittany sought English aid against a threatened invasion by Charles V., Du Guesclin was sent at the head of a powerful army to seize the duchy, which he did; and two years later he frustrated, by a defensive policy, the attempt of the Duke with an English army to recover it. Finding, in 1379, that the king entertained suspicions of his fidelity to him, he resolved to give up his constable's sword and retire to Spain. His resolution was at first proof against remonstrance; but ultimately he received back the sword, and continued in the service of France. In 1380 he was sent into Languedoc to suppress disturbances and brigandage, provoked by the harsh government of the Duke of Anjou. His first act was to lay siege to the fortress of Châteauneuf-Randon, held by the English, strongly garrisoned and well provisioned. A day was fixed conditionally for capitulation. Meanwhile the great warrior was smitten with a mortal illness, and died, July 13, 1380. The commander led out the garrison and deposited the keys of the castle on the coffin of the hero. Du Guesclin lost his first wife in 1371, and married a second in 1373, but left no legitimate children. His remains were interred, by order of the king, in the Church of St. Denis.

DUHALDE, JEAN BAPTISTE (1674–1743), geographical writer, was born at Paris.

DUHAMEL, JEAN BAPTISTE (1624–1706), a French astronomer and physician, was the son of an advocate, and was born at Vire, in Normandy.

DUHAMEL DU MONCEAU, HENRY LOUIS (1700–1782), a celebrated French botanist and agriculturist, was the son of Alexandre Duhamel, Lord of Denainvilliers, and was born at Paris. Duhamel's aim in his researches was rather to be useful than to gratify his own curiosity or to win fame. He made himself accessible to all who sought information from him, and his modesty was as great as his knowledge. He was scrupulous in the practice of his religious duties.

DUISBURG, a town of Prussia, at the head of a circle in the government of Düsseldorf, situated at an important railway junction in the country between the

Rhine and the Ruhr, and communicating with both rivers by a canal.

DUKE, next to the princes and princesses of the blood royal, and the four archbishops of England and Ireland, the highest order and rank of the British peerage. The title of Duke was introduced into England, when, by a charter dated March 17, 1337, the lordships, castles, lands, etc., constituting the earldom of Cornwall, were erected by King Edward III. into a duchy, and were conferred upon his eldest son Prince Edward of Woodstock, afterward so well and honorably known as the Black Prince, who thus as Duke of Cornwall was the first English duke. When, in 1343, he was created to the dignity of Prince of Wales, the Black Prince was invested with a coronet, a gold ring, and a silver rod. And as Duke of Cornwall, he had already been invested with a sword. The second of the English dukes was Henry, Earl of Lancaster, Derby, and Leicester, and Count of Provence, who in 1351 was created Duke of Lancaster.

The titles archduke and archduchess, grand-duke and grand-duchess, are in use on the Continent, the former in Austria and the latter in Russia, to distinguish the princes and princesses of the imperial families. The title grand-duke has also been applied to certain of the minor Continental independent princes.

DUKINFIELD, a township and local board district of England, in East Cheshire, forming part of the parliamentary boroughs of STALEYBRIDGE, which see.

DULCAMARA, so named from its taste, at first bitter and eventually sweet, is a drug consisting of the dried young branches of *Solanum Dulcamara*, Bittersweet or Woody Nightshade—a woody perennial of the natural order *Solanaceae*. It has a slender shrubby and climbing stem; flowers in lateral or terminal cymes, with a hypogynous purple corolla, and yellow anthers converging into a cone; and fruit a red, oval, scarlet berry. For medical purposes the branches are collected in autumn when the leaves are shed.

DULCIGNO, a town of Turkey in Europe, in the Albanian sanjak of Scutari, occupying a bold promontory on the Adriatic, eighteen miles west-southwest of the town of Scutari.

DULUTH, a city and lake port of the United States, in the State of Minnesota, advantageously situated at the southwest extremity of Lake Superior, about 150 miles northeast of St. Paul. It forms the eastern terminus of the Northern Pacific Railroad and the northern terminus of the Chicago, St. Paul, Minneapolis & Omaha Railroad; it also has two other railroads. A ship canal, 250 feet wide, which has been cut across Minnesota point, gives ready access to the town from the lake. Duluth stands on the side of an acclivity overlooking the lake. It possesses docks, and contains several manufactories. Owing to its position the rise of the town has been very rapid. In 1860 the population was but 75, in 1889 it is estimated at 40,000.

DULWICH, a village of England, in the county of Surrey, five miles from London Bridge, remarkable for its college and picture gallery. The manor, which had belonged to the Cluniac monks of Bermondsey, was granted by Henry VIII., in 1541, to Thomas Calton; and his grandson, Sir Francis Calton, sold it in 1606 to Edward Alleyn, whose name is indissolubly associated with the place by his princely foundation.

DUMANGAS, a town of the Philippines, in the island of Panay, near the mouth of the River Jaluar. It is situated in a fertile plain, and deals in rice, trepang, and *pina*. Population stated at 25,000.

DUMARSAIS, CÉSAR CHESNEAU (1676-1756), a French philologist, was born at Marseilles. Dumar-sais possessed no ordinary talents. His researches are

distinguished alike by their accuracy, ingenuity, and depth. As a man, he combined the greatest purity of morals and simplicity of character with a rare degree of manly fortitude in the midst of his misfortunes; yet during the greater part of his life he was left to languish in obscurity, and his merits scarcely attracted any notice until nearly half a century after his death. His works on philosophy and general grammar, however, are worthy of attention. Of these, the best are his *Principes de Grammaire* and his *Histoire des Tropes*. D'Alembert and Voltaire both paid a just and discriminating tribute to the merits of Dumarsais. An edition of his works was collected by Duchosal and Millon, and published at Paris in 1797.

DUMAS, ALEXANDRE, one of the most remarkable characters that the nineteenth century has produced, was the son of General Dumas and Marie Labouret, an innkeeper's daughter.

Alexandre Dumas was born on July 4, 1802, at Villers-Cotterets, where he was brought up under the care of an affectionate and pious mother. Some of the most graceful passages of autobiography are to be found in those pages of his memoirs which are devoted to an account of his boyhood, and which present an excellent picture of French country town life. He seems to have been an idle and troublesome youth, and, though places were found for him with notaries and other functionaries, he could not settle to business. The family means were slender. They were soon almost reduced to poverty; and in the year 1823 Alexandre set off for Paris to seek his fortune, where he was to make such good use of his slender opportunities, that within five years his name became famous. Within a few days of his arrival, an old friend of his father's, General Foy, obtained a clerk's place for him in the Duke of Orleans' establishment, worth only £50 a year, but it seemed a fortune. A friend, De Leuven, and he now joined their talents in a light farce called *Le Chasse et l'Amour* (produced September 22, 1825). This was succeeded by a dramatic piece, written with the assistance of one of his friends, and called *La Noce et l'Enterrement* (November 21, 1826), known in England as the amusing *Illustrious Stranger*. Meanwhile the visit of Macready and other English players to Paris had introduced him to Shakespeare, and had set him to work on a grand romantic and historical drama which he called *Christine*. The young clerk had the boldness to look forward to having it presented on the boards of the first theater in France, and, with an energy and spirit that should encourage every friendless aspirant, set every resource he could command at work. Charles Nodier introduced him to Baron Taylor, the literary director of the theater, who, if we are to credit Dumas, was so enchanted with the work that he accepted it and submitted it to the company at once. It is more probable that, from the rather corrupt fashion which then regulated such matters, the privilege was secured by the influence of the Duke of Orleans. But it happened that another *Christine* was supported by even greater influence, and Dumas' had to be withdrawn. In a short time he had written *Henri III.* which was produced (February 11, 1829) with the most extraordinary results. This piece was important as being the first success of the well-known "Romantic school." *Henri III.*, it is said, brought its author about £2,000. But the revolution of July now broke out and interrupted every literary scheme.

It was, however, welcomed by the creole's son, who flung himself with ardor into the struggle. And here begins that double interest in his life, which was as adventurous as that of some of his own heroes, and suggests the career of Benvenuto Cellini. He has, of

course, made his own share in the exciting scenes of *Three Days* as conspicuous as possible; and his expedition to Soissons, and almost single-handed capture of a powder magazine, a general, and officers, were heartily laughed at and wholly disbelieved. Allowing, however, for embellishment, it is due to him to say that his narrative seems to be true in the main. He was, however, unlucky enough to have cast his lot with the more violent party, which found itself opposed to the Orleans family, and never recovered their favor; and King Louis Philippe always treated him with a good humored contempt.

He now returned to his dramatic labors, and produced *Antony* (1831), one of the earliest of those gross outrages on public morality which have helped to make conjugal infidelity the favorite theme of the French drama. But by this time he had found that the slow production of dramas scarcely offered a profitable field for his talents. The successful founding of the *Revue des Deux Mondes* tempted him into trying his skill on historical romances, professedly in imitation of Sir Walter Scott. And this would seem to be the first opening of that seam which was to be worked later with such extraordinary profit. Here he introduced that daring system of working up the ideas of others, which he had already carried out in his dramatic labors, his successful pieces of *Henri III.* and *Christine* proving to consist of whose scenes stolen from Schiller and other writers almost without changing a word, though the arrangement of the plot and situations are masterly and original. A piece of his, called *Tour de Nesle* (produced in 1832), which caused a perfect furore in Paris, led, however, to a more serious charge of plagiarism. In consequence of a duel he was directed to leave France for a time, and set off—in July, 1832—on a tour through Switzerland, which suggested to him a series of those odd books of travel made up of long extracts from old memoirs, guide-books, imaginary dialogues, and adventures.

In 1842 he married an actress named Ida Ferrier, who had performed in his plays; but the union was not a happy one, and, after a rather extravagant career, the lady retired to Florence, where she died in the year 1859. Hitherto his success, though remarkable, could not be called European, and he was not to be distinguished from the crowd of French professional *littérateurs*. But in 1844 the famous *Monte Christo* appeared, which may be said to have excited more universal interest than any romance since *Robinson Crusoe* or *Waverley*. The extraordinary color, the never-flagging spirit, the endless surprises, and the air of nature which was cast over even the most extravagant situations, make this work worthy of the popularity it enjoyed in almost every country of the world. It was followed by the no less famous *Three Musketeers*. These productions were the more remarkable as they were written from day to day for the readers of a newspaper, and thus firmly established the *feuilleton* as a necessary element of French literature. In this, as in other departments where he was successful, Dumas was not original, and only took up the idea of a successful predecessor, Eugène Sue, whose *Juif Errant* had enjoyed much popularity in this shape.

This triumph made him, as it were, irresponsible in the literary world, and suggested to him a series of wholesale operations for supplying the public with books, the history of which makes an extraordinary chapter in literature. He contracted for innumerable stories, each of great length, and to be published at the same time, almost any one of which would be beyond the powers of a single writer. In a single year, 1844, he issued some forty volumes, and later on he engaged himself even

more deeply to meet these heavy demands. He began by employing one or two assistants, with whose aid he furnished his two great stories; and it may be said that, with his constant supervision and inspiration, his daily direction, suggestion of incidents, manipulation of the ideas of others, consultations, etc., he might almost fairly claim the credit of having written *Monte Christo* and the *Three Musketeers*. His most valuable assistant was Maquet. Indeed, the chief credit of Dumas' most important stories has been claimed for him; but as he afterward often tried his powers alone, and with but poor success, it seems probable that his share in Dumas' works was no more than what has been described. But presently the popular writer found that even this form of partnership was too great a tax upon his time, and he began to proceed upon the simpler process of ordering works from clever young writers, to whom he suggested a subject and perhaps simple outline of treatment—and then issuing their work with his name. Some care in the selection was at first exercised, but later he accepted any stuff that was brought to him—travels, essays, stories—and endorsed them with his name. Indeed, a volume could be filled with the odd details and complicated ramifications of this system, which was exposed in the most unsparring fashion by Granier de Cassagnac, Jacquet, *alias* "De Mirecourt," and Quérard. Dumas justified his system of appropriating from dead and living authors by a theory of what he called "conquests." "All human phenomena," he says, "are public property. The man of genius does not steal, he only conquers. Every one arrives in his turn and at his hour, seizes what his ancestors have left, and puts it into new shapes and combinations."

In the mean time he was earning vast sums. Leaving the work of composition to his journeyman, he now entered on a new and reckless course, with a view of dazzling his countrymen and gratifying his own Eastern taste. In this view he built a vast theater for the production of his own works, and a gorgeous castle at St. Germain, on the model of a palace in a fairy tale, on which he lavished every adornment. While these follies were in progress, he succeeded in getting himself attached to the suite of the young Duke of Montpensier, then (1846) setting out for Madrid to be married, and received beside a sort of commission from the government to visit Algeria, with a view to making it popular by a lively account from his pen. He was granted a passage to Oran on board one of the government mail boats, but, through an awkward misconception, was allowed to divert this vessel from her regular service, and used her for visiting Carthage, Tunis, and other places. On his return there was much scandal, and the ministry was very severely interrogated as to the irregularity of allowing "a contractor for stories" to make so free with public property. It was explained that this was entirely owing to a misrepresentation of the popular writer. Another rebuff, too, was waiting him; for, having completely neglected his engagements to the various newspapers while making this agreeable tour, he found himself engaged in heavy law-suits with no less than seven journals, including the *Constitutionnel* and the *Presse*. After defending himself in person, a performance that was the entertainment of all Paris, he was cast in damages. This was the beginning of his disasters. His theater, after opening with one of his pieces which took two nights to perform, fell on evil days, and the revolution of 1848 plunged it into difficulties. In these new schemes he was by no means popular, being suspected from his assiduous attendance on the Orleans family. By this time all his best works had been written; and he was now only to attract attention by some extravagant literary somersault or

udent attempt at "humbugging" the public. He attempted newspapers like the *Mosquetaire*, of which he would grow tired after a few numbers, but to every article in which he was ready to attach his name. His next escapade was in joining Garibaldi (1860), whose messenger and lieutenant he constituted himself; and, in reward for some trifling service, he claimed the appointment of "director of the museum and explorations" at Naples, an office he was presently forced to resign. After this he was reduced to all manner of devices to maintain himself, always borrowing and obtaining money by shifts and pretenses which in another could not be called honest. It becomes, indeed, painful to follow the stages in this rapid decay — to find him reduced to writing "puffs" for tradesmen, to exhibiting himself in shop windows, and to introducing grand schemes to the public which it is impossible to read without hearty laughter. A scandalous infatuation, too, was to be associated with his old age, which last excited the contemptuous pity of all who knew him. To the last he was full of schemes, devised with the fertility and roseate imagination of a Micawber; and to the last, unfortunately, he was devoted to pleasure. The result was a breaking up of his health, and even a decay of his faculties. When the war of 1870 broke out he was removed from Paris to Puy, near Dieppe, and there affectionately attended by his son and daughter. He died on December 5th of the same year. He was even poorer than when he began the world; and the brilliant novelist, who had earned more than £10,000 a year, had hardly a sou left. On April 16, 1872, when the war was over, his remains were removed to Villers-Cotterets, and interred in presence of the leading *littérateurs* of Paris.

DUMAS, MATTHIEU, COUNT, a French general and military historian, was born at Montpellier of a noble family, on November 23, 1753. He joined the army in 1773, and entered upon active service in 1780, as aide-camp to Rochambeau commander-in-chief of the army sent to aid the Americans in their war against England. He had a share in all the principal engagements that occurred during a period of nearly two years. Shortly after the capture of Yorktown, in which he took part, he joined the expedition under Vandreuil intended to make an attack on Jamaica. On the conclusion of peace with England, in 1783, he returned to France, where he soon afterward received his commission as major. In 1784 he was sent to explore the archipelago and the coasts of Turkey, a service in which he was engaged for two years, and which he performed with great thoroughness. He was present at the siege of Amsterdam in 1787, where he cooperated with the Dutch against the Prussians. At the Revolution he acted with Lafayette and the constitutional liberal party, whose aim was to effect a complete reform without abolishing monarchy. He was intrusted by the Assembly with the command of the escort which conducted Louis XVI. to Paris from Varennes, where he had been arrested. In 1791 he was appointed to a command at Metz, where he rendered important service in improving the discipline of the troops, and in organizing the first battalion of horse artillery that was formed in France. Chosen a member of the Legislative Assembly in the same year by the department of Seine-et-Oise, he advocated with firmness and eloquence the principles and policy of the constitutional party to which he belonged. In the following year he was elected President of the Assembly. When the extreme republicans gained the ascendancy, however, he became a marked man, and judged it prudent to make his escape to England. Returning after a brief interval under the apprehension that his father-in-law would be held responsible for his absence, he arrived

in Paris in the midst of the Reign of Terror, and had to flee to Switzerland to avoid the fate of his friends Barnave and Dupont Detretré. Soon after his return to France he was elected a member of the Council of Ancients. On the triumph of the extreme revolutionists in 1797, Dumas, being proscribed as a monarchist, made his escape to Holstein, where he enjoyed the hospitality of Count Stolberg. During this exile he wrote the first part of his *Précis des Evénements Militaires*, which was published anonymously in monthly numbers at Hamburg in 1800. Recalled to his native country when Bonaparte became first consul, he declined the prefecture of Bordeaux, preferring a military appointment. Intrusted with the organization of the army of reserve at Dijon, he was on the completion of the task appointed chief of the staff to that army. In 1801 he was nominated a councillor of state, and in the same year he was chosen to propose and defend in the Corps Legislatif the formation of the Legion of Honor, of which order he afterward (1810), became grand officer. Attached to the household of Joseph Bonaparte, Dumas went in 1806 to Naples, where he became minister of war. On the transfer of Joseph to the throne of Spain, and the accession of Murat to that of Naples, Dumas rejoined the French army, with which he served in Spain during the campaign of 1808, and in Germany during that of 1809. After the battle of Wagram, Dumas was employed in negotiating the armistice, and he was left by Napoleon at Vienna in order to superintend the evacuation of Austrian territory by the French troops. In the disastrous Russian expedition of 1812, he held the post of intendant-general of the army, which involved the charge of the entire administrative department. He shared the horrors of the retreat from Moscow, and the privations he suffered brought on a dangerous illness, from which, however, he recovered after a brief interval of repose at Dantzic. Resuming his duties as intendant-general, he took part in the battles of Lützen and Bautzen. When the decisive defeat of Leipsic occurred, Dumas, who was stationed with the besieged army in Dresden, was employed to negotiate the unavoidable capitulation, the terms of which, though agreed to by the opposing general, were not ratified by the allied sovereigns. Dumas, who had gone to report the matter to the emperor, was consequently arrested and imprisoned in Hungary until peace was concluded in 1814. On the accession of Louis XVIII., Dumas received several important commissions in connection with the administration of the army. When Napoleon returned from Elba, Dumas at first kept himself in retirement, but he was persuaded by Joseph Bonaparte to present himself to the emperor, who intrusted him with the task of organizing the National Guards. This brought him into disfavor with the Bourbons, and he was obliged to retire upon half-pay when Louis XVIII. was restored to the throne. He devoted his leisure to the continuation of his *Précis des Evénements Militaires*, of which nineteen volumes, embracing the history of the war from 1798 to the Peace of Tilsit, in 1807, appeared between 1817 and 1826. A growing weakness of sight, ending in total blindness, prevented him from carrying the work farther, but he translated Napier's *History of the Peninsular War* as a sort of continuation to it. In 1818 Dumas was restored to favor through the influence of Gouvion Saint-Cyr, and admitted a member of the Council of State. In 1828 he was chosen a deputy by the first arrondissement of Paris. After the revolution of 1830, in the events of which he took an active part, Dumas was created a peer of France, and reentered the Council of State as president of the war committee. He died at Paris, October 16, 1837.

DUMBARTON, a western county of Scotland, an-

ciently called Lennox or Levenaux, bounded by the River Clyde and its estuary on the south, by Stirlingshire and Lanarkshire on the east, by Perthshire on the north, and by Loch Long and Argyllshire on the west. It consists of two parts, which are six miles distant from each other, and are separated by part of Lanarkshire. The western or larger district is about thirty-five miles long from northwest to southeast, and fifteen broad, the breadth varying from two to thirteen miles. The eastern district, which is about twelve miles in length from east to west, and four in breadth from north to south, is completely inclosed by the counties of Stirling and Lanark.

DUMBARTON, a royal parliamentary and municipal burgh and seaport-town of Scotland, capital of Dumbartonshire, is situated at the confluence of the Rivers Clyde and Leven, fourteen miles northwest from Glasgow. It is a very ancient place, and is said to have been once the capital of a kingdom of the Britons in the vale of the Clyde. Alclud, "the rock upon the Clyde," was the name of this ancient capital of the Strathclydens; but whether it was situated on the site of the present town, or confined within the precincts of the castle, cannot be exactly ascertained.

DUMDUM, or DAMDAMÁ, a town and cantonment in British India, at the head of an administrative subdivision in the district of the Twenty-four Pergunnahs, in the presidency of Bengal, with a station on the Eastern Bengal Railway, four and one-half miles northeast of Calcutta.

DUMFRIES, one of the three Scottish border counties, lies in an elliptical form on the north side of the Solway Firth, its other boundaries being Lanark, Peebles, and Selkirk on the north, Roxburgh on the east, Ayr and Kirkcudbright on the west, and Cumberland on the south. Its greatest length is fully fifty miles, its breadth thirty-two, its circumference 190, and the area is 1,103 square miles or 702,953 acres. The coast-line on the Solway measures twenty-one miles. Toward this arm of the sea the county slopes down from a high mountain range, by which it is cinctured on the north, the intermediate space being extremely irregular, lofty hills alternating with wide stretches of table land or rich fertile holms, and in other instances the surface looking like a vast undulating mass that by some natural process had suddenly become fixed and rigid. Among the leading features of the county are the three dales by which it is cleft from north to south, and through which run the rivers that give name to them, the Nith, Annan, and Esk. Overlooking these rise numerous elevations, the highest being Whitecumb in the east, 2,695 feet; Hartfell in the north, 2,651 feet; Queensberry, also in the north, 2,285 feet, which gives to the Duke of Buccleuch his secondary title, and the title of marquis to a branch of the house of Douglas; and Ettrick Pen, 2,269 feet, the latter standing sentinel over an extensive district.

DUMFRIES, beautifully situated on the left bank of the Nith, about eight miles from the Solway Firth, is the capital of the county just described.

The irregular yet decided progress of the town can be traced through the Middle Ages, and more recently till our own day, when it wears an attractive and flourishing aspect. A serious check was given to its prosperity by a visitation of cholera, which cut off more than 500 of its inhabitants in 1832. Since a copious supply of good water was obtained from a neighboring loch, and other sanitary improvements were introduced, the salubrity of the burgh has been fairly established, and its size and trade — promoted also by its railway intercourse and the establishment of the tweed manufacture — have greatly increased. Few Scotch provincial towns have

gone forward with such a gigantic stride during the last thirty years, and its steps in advance have been especially remarkable during the latter half of that period, as shown chiefly by the bustle of its business streets, the formation of new thoroughfares, and the numerous suburban villas which now environ the old burgh proper.

DUMONT, JEAN, a well-known publicist, was born in France in the seventeenth century, the precise date being unknown. He died at Vienna, in 1726, at an advanced age. Dumont wrote with facility, but his style is deficient in vigor and correctness; his works, however, contain a great number of documents valuable for history.

DUMONT, PIERRE ÉTIENNE LOUIS, a political writer, celebrated chiefly for his literary connection with Mirabeau and Jeremy Bentham, was born on July 18, 1759, at Geneva, of which his family had been citizens of good repute from the days of Calvin. Having completed his academical course at Geneva, he took clerical orders; and in the year 1781, he was chosen one of the pastors of the city, where his talents as a preacher soon attracted general notice, and gave promise of his becoming one of the most brilliant and persuasive of pulpit orators. But the political troubles which disturbed Geneva in 1782, suddenly turned the course of his life into a different channel. He belonged to the liberals or democrats, and the triumph of the aristocratical party, through the interference of the courts of France and Sardinia, made residence in his native town impossible to him, though he was not among the number of the proscribed. He therefore became a voluntary exile, and went to join his mother and sisters at St. Petersburg, a city to which many Genevese had resorted. In this he was probably influenced in part by the example of his townsman Lefort, who was the first tutor, minister, and general of the Czar. At St. Petersburg he filled for eighteen months, with great acceptance, the office of pastor of the French church. In 1785 he removed to London, Lord Shelburne, then a minister of state, having invited him to undertake the education of his sons. It was at the house of Lord Shelburne, afterward Marquis of Lansdowne, where he was treated as a friend, or rather member of the family, that he became acquainted with some of the most illustrious men of the country, amongst whom may be mentioned Fox, Sheridan, Lord Holland, and Sir Samuel Romilly. With the last of these he formed a close and enduring friendship, which had an important influence on his life and pursuits.

In 1788 Dumont visited Paris in company with Romilly. During a sojourn of two months in that city he had almost daily intercourse with Mirabeau; and a certain affinity of talents and pursuits led to an intimacy between two persons diametrically opposed to each other in habits and in character. On his return from Paris, Dumont formed that connection with Jeremy Bentham which exercised a powerful influence over his future opinions, and, as it were, fixed his career as a writer on legislation. Filled with admiration for the genius of Bentham, and profoundly impressed with the truth of his theory, and the important consequences to which it immediately led, Dumont made it one of the chief objects of his life to recast and edit the writings of the great English jurist in a form suitable for the ordinary reading public. This literary relationship was, according to Dumont's own account, one of a somewhat peculiar character. All the fundamental ideas and most of the illustrative material were supplied in the manuscripts of Bentham; Dumont's task was chiefly to abridge by striking out repeated matter, to supply lacunæ, to secure uniformity of style, and to improve

the French. The following works of Bentham were published under the editorship of Dumont: — *Traité de la Législation* (1802), *Théorie des Peines et des Récompenses* (1811), *Tactique des Assemblées Législatives* (1815), *Preuves Judiciaires* (1823), and *Organisation Judiciaire et Codification* (1828).

In the summer of 1879 Dumont suspended his labors in England in order to proceed to Paris along with his friend, Duroverai, ex-attorney-general of the Republic of Geneva. The object of the journey was to obtain, through Necker, who had just returned to office, an unrestricted restoration of Genevese liberty, by cancelling the treaty of guarantee between France and Switzerland, which prevented the republic from enacting new laws without the consent of the parties to this treaty. The same cause also led him to renew his acquaintance with Mirabeau, whom he found occupied with his duties as a deputy, and with the composition of his journal, the *Courrier de Provence*, in which he was assisted by Duroverai Clavière, and other Genevese patriots. For a time Dumont took an active and very efficient part in the conduct of this journal, supplying it with reports, as well as original articles, and also furnishing Mirabeau with speeches to be delivered, or rather read, in the assembly, as related in his highly instructive and interesting posthumous work entitled, *Souvenirs sur Mirabeau* (1832). But this coöperation, so valuable for Mirabeau, and so self-devoted on the part of Dumont, was destined soon to come to an end; for, being attacked in pamphlets as one of Mirabeau's writers, he felt hurt at the notoriety thus given to his name in connection with a man occupying Mirabeau's peculiar position, and resolved to return to England, which he accordingly did in 1791.

In the eventful years which followed he continued to live chiefly at Lansdowne House, or at Bowood, where the most remarkable men of Europe were frequent guests. Latterly he formed an intimate friendship with Lord Holland, whom he had known from childhood; and he became a member of the society of familiar friends, the habitual visitors at Holland House, where, during many years, celebrated guests were welcomed of every country, party, religion, and of every liberal profession or station. In 1801 Dumont traveled over various parts of Europe with Lord Henry Petty, afterward Marquis of Lansdowne, and brought back a fresher acquaintance with the mental occupations of the Continental nations, from whom England had for years been widely separated. But Dumont had then opened a new course of more serious occupations, in the editorship of the works of Bentham already mentioned. In 1801 he published the *Traité de la Législation*, the first fruits of his zealous labors to give order, clearness, and vivacity to the profound and original meditations of Bentham, hitherto praised only by a very few patient readers, and but little better known, even by name, to the English than to the European public. In 1814 the restoration of Geneva to independence induced Dumont to return to his native place, and he soon became at once the leader and ornament of the supreme council. He devoted particular attention to the judicial and penal systems of his native state, and many improvements on both are due to him. At the time of his death, he was on the eve of proposing a complete code of law, by which he fondly hoped to make the legislation of Geneva an example to Europe. He died at Milan when on an autumn tour of relaxation, in October, 1829, in the seventy-first year of his age.

DUMONT D'URVILLE, JULES SÉBASTIAN CÉSAR (1790-1842), a French navigator, born in the town of Condé-sur-Noireau, in Normandy. Failing to pass the entrance examination for the Ecole Polytechnique, he

went to sea in 1807 as a novice on the *Aquilon*, and soon attracted the attention of the captain, Maignon, by his studious disposition. During the next twelve years he gradually rose in his profession, and continued through all its multitudinous vicissitudes to increase his scientific and linguistic acquisitions; botany, entomology, English, German, Spanish, Italian, and even Hebrew and Greek, were added to the more professional branches. In 1820, while engaged in a survey of the Mediterranean under Captain Gauthier of the *Chevette*, he was fortunate enough to recognize the Venus of Milo in a Greek statue recently unearthed, and to secure its preservation by the report he presented to the French ambassador at Constantinople. Promotion to the rank of *capitaine de vaisseau* was bestowed on the commander in August, 1829; and in August of the following year he was charged with the delicate task of conveying the exiled king, Charles X., to England. His proposal to undertake a voyage of discovery to the south polar regions was discouraged by Arago and others, who criticized the work of the previous expedition in no measured terms; but at last, in 1837, all difficulties were surmounted, and on September 7th he set sail from Toulon with the *Astrolabe* and its convoy *La Zélée*. On January 15, 1838, they sighted the Antarctic ice, and soon after their progress southward was blocked by a continuous bank, which they vainly coasted for 300 miles to the east. Returning westward they visited the South Orkney Islands and part of the New Shetlands, and discovered Joinville Island and Louis Philippe's Land, but were compelled by scurvy to seek succor at Talcahuano in Chili. Thence they proceeded across the Pacific and through the Asiatic archipelago, visiting among others the Fiji and the Pelew Islands, coasting New Guinea, and circumnavigating Borneo. In 1840, leaving their sick at Hobart Town, Tasmania, they returned to the Antarctic region, and on the 21st of the month were rewarded by the discovery of Adélie Land, in 140° east of Greenwich. November 6th found them at Toulon. D'Urville was at once appointed rear-admiral, and in 1841 he received the gold medal of the Société de Géographie. On May 8, 1842, he was killed, along with his wife and son, in a railway accident near Meudon. Though many of his observations are no longer regarded as trustworthy, on account of the defective character of the instruments employed, he made many important additions to various departments of scientific geography; and his natural history collections were especially valuable.

DUMOURIEZ, CHARLES FRANÇOIS, general of the French republican army, was born at Cambray in 1739, of a respectable family of Provence. His father was a commissary of the royal army, and had acquired some celebrity as a poet; and from him young Dumouriez received his earliest instructions. His studies were continued at the college of Louis-le-Grand for three years. In 1757, his father having been attached to the army under D'Estrees about to invade Hanover, he accompanied him to Mauberge, and served with distinction during the Seven Years' War. In 1763 he attained the rank of captain; but, in consequence of a reform reducing the numbers of the army, he retired with a small pension and the Cross of St. Louis. He afterward received a subordinate situation in the secret service.

On his return from a pedestrian tour in Italy, he addressed a memorial to the Duc de Choiseul, urging him to embrace the cause of the Corsicans against the Genoese; and a public audience which he had with the minister on the subject led to a violent altercation, the result of which was a *lettre de cachet*, which forced Dumouriez to leave France. But the expedition which he had advised being afterward resolved on, Choiseul

made him an honorable public reparation, and appointed him quartermaster-general of the troops. The political conjunctures of the times offered an unlimited scope for his fertility in diplomatic expedient, and he mingled in all the intrigues of the age. In 1770 he was sent on a secret mission to Poland with the view of neutralizing the efforts of Catherine II., and succeeded in securing fifty senators for the cause of independence, effected a unity of action among the confederates, and disciplined a militia; but, when there was some appearance of the resurrection of Poland being effected, Choiseul lost his place, owing to the machinations of the Duc d'Aiguillon and Madame Du Barry, and Dumouriez was recalled to Paris. He was soon, however, sent back on a similar mission by D'Aiguillon. He endeavored to assist the revolutionists in Sweden, and to raise troops in the Hanse towns to menace Stockholm, but this was contrary to the views of the French cabinet; and the Duc d'Aiguillon, having discovered his project, had him arrested and imprisoned in the Bastille for six months. He was afterward sent to the castle of Caen, from which he was not released until the accession of Louis XVI.

Dumouriez had naturally little inclination to resume the connection with foreign politics which had proved so dangerous, and he accordingly devoted his attention to the internal economy of his own country. He wrote a memoir on the great importance that might be given to the harbor of Cherbourg, one result of which was that he was appointed governor of the place in 1778.

In 1788 Dumouriez was promoted to the rank of major-general. When the revolutionary movement began he pronounced in favor of political reform without breaking with the court. The connections which he held with the leading men of the Girondist party greatly advanced his political career. At the opening of the second legislative assembly he was appointed minister for foreign affairs in place of Delessart, but he held the position for only three months. During his short tenure of office he exerted himself to the utmost in reforming abuses, and in introducing the greatest economy into every department.

He held for one month the office of minister of war after the dismissal of his colleagues Roland, Servan, and Clavière. At length his own resignation followed, which increased his popularity. When the troops of the coalition advanced against France, he was appointed to the command of the Army of the North as lieutenant-general under Marshal Luckner. He made a determined stand against the advance of the allies, which was decisively checked by the defeat inflicted on them at Valmy on September 20, 1792. This was followed by a campaign in the Austrian Netherlands, in which Dumouriez was uniformly successful, until he was signally defeated by Coburg in the battle of Neerwinden, in January, 1793. The execution of Louis had estranged him from the republican party; and, when in consequence of his defeat he was recalled by the Convention and threatened with a charge of treason, he sought refuge in the camp of the Austrians, accompanied by the Duc de Chartres (afterward Louis Philippe) and his brother.

Lost without hope of return to his native country, Dumouriez wandered a long time an exile in Brussels, England, Switzerland, Germany, Denmark, and St. Petersburg. At last, in 1804, he took up his permanent residence in England, where the Government conferred on him a pension of £1,200 a year. In 1814 and 1815 he endeavored to procure from Louis XVIII. the baton of a marshal of France, but was refused. He died at Turville Park, near Henley-on-Thames, on March 14, 1823. His memoirs, written by himself, were published at Hamburg in 1794.

DUNABURG, a town of European Russia, at the head of a district in the government of Vitebsk, for the most part on the right bank of the Dwina, twelve miles southeast of Riga. Population, 29,613.

DUNBAR, a royal and parliamentary burgh and seaport of Scotland, in the county of Haddington, situated on an eminence near the mouth of the Forth of Forth, twenty-nine and a quarter miles east-northeast of Edinburgh by the North British Railway. The ruins of the castle, the remains of the Grey Friars' monastery founded in 1218, and a mansion house of the Landerdale family, are the principal objects of historical interest.

DUNBAR, WILLIAM, one of the most distinguished of the early poets of Scotland, is supposed to have been born about 1460. Comparatively little is known about his personal history, but, from an allusion in one of his poems, he seems to have been a native of Lothian. In his fifteenth or sixteenth year he was sent to the university of St. Andrews, where he received the degree of B.A. in 1477, and that of M.A. in 1479.

In 1501 he went to England with the ambassadors sent to conclude the negotiations for the marriage of the young King James with the Princess Margaret, daughter of Henry VII. During the festivities on this occasion Dunbar was styled "the Rhymer of Scotland," and received from Henry a present of £6, 13s. 4d. in December, and a similar sum in January of the subsequent year. On his return to Edinburgh a sum of £5 was paid to him in addition to his salary. In honor of this marriage Dunbar composed his well known poem, *The Thirssil and the Rois*, another in honor of the city of London, and several others in which he described the personal attractions of the young queen. After this he lived much at court writing poems, although at the same time he hoped to obtain preferment in the church.

In 1504 he first performed mass before the king, whose offering on that occasion was £4, 18s., a larger sum than that usually paid on the occasion of a priest's first mass. In 1507 his pension was augmented to £20, and three years afterward it was raised to £80, to be paid during his life, or until he should be promoted to a benefice of £100 or more. In 1511 he seems to have been in the train of Queen Margaret when she visited the northern part of Scotland, as one of his poems, descriptive of her reception at Aberdeen, is evidently written by an eye-witness.

After the disaster of Flodden, in 1513, Dunbar's fortunes seemed to have changed, and no further mention of him occurs as receiving pension. That he may have obtained church preferment is quite possible, but the probability is that the early death of the king, and the unpopularity of the queen and the little influence she had after her marriage with the Earl of Angus, may have led to neglect of Dunbar in his old age. His poems contain many allusions to the unequal division of the world's goods. He was alive in 1517, as in that year he wrote a poem on the occasion of the Regent Albany passing into France, in which he laments the distracted state of public affairs in Scotland. He is supposed to have died about the year 1520, when he had attained his sixtieth year.

DUNBLANE, a market-town in Perthshire, Scotland, formerly the seat of a bishopric, pleasantly situated on the banks of the Allan.

DUNCAN, ADAM, FIRST VISCOUNT, (1731-1804), an illustrious naval commander, was born at Lundie, in Forfarshire, Scotland.

DUNCAN, THOMAS (1807-1845), a distinguished Scottish portrait and historical painter, was born at Kinclaven, in Perthshire.

DUNDALK, a parliamentary borough, seaport, and

market-town of Ireland, County Louth, on the south bank of the Castletown River, near its mouth in Dundalk Bay, fifty miles north of Dublin.

DUNDAS, HENRY. See MELVILLE VISCOUNT.

DUNDEE, a royal and parliamentary burgh and seaport, is situated on the east coast of Scotland, in the county of Forfar, on the north bank of the Firth of Tay, twelve miles from the confluence of that estuary with the German Ocean. It is the third town in Scotland as regards population, and the second in commercial importance. It extends nearly three miles along the shores of the Tay, and varies in breadth from half a mile to a mile; and the ground gradually rises toward the hill of Balgay and Dundee Law, the summit of the latter being 535 feet above the sea-level. Its general appearance is pleasing and picturesque, and the surrounding scenery very beautiful.

DUNDEE, JOHN GRAHAM OF CLAVERHOUSE, VISCOUNT, born in or about the year 1643, was the elder son of Sir William Graham and Lady Jean Carnegie. Of his youth little record has been kept; but in the year 1665, he appeared in St. Andrews as a student of St. Leonard's College. Young Graham was destined for a military career; and, having remained in St. Andrews for about four years, he proceeded abroad as a volunteer in the service of France. Thereafter, in 1672, he went to Holland, and obtained the post of cornet in one of the cavalry regiments of William, Prince of Orange. In 1674 he was raised to the rank of captain, as a reward for having rescued the prince from a marsh where his horse had foundered during a retreat. Shortly afterward, William having at his disposal the command of one of the Scotch regiments in Holland, Graham made application for the post. He was not appointed, and resigned his commission. In the beginning of 1677, he returned to England, bearing, it is said, letters of strong recommendation from William to Charles II., and the Duke of York.

Early in 1678, he accepted a lieutenancy in a troop of horse under the command of his relative the Marquis of Montrose. Promotion immediately followed. He was expressly nominated by Charles II. to the command of one of the newly raised troops of cavalry. From the time, indeed, of his return to Scotland he assumed an influential position. In the end of the year he was dispatched with his troop to Galloway to suppress the disorders which prevailed in the district. He entered upon his occupation with zest, and interpreted consistently the orders he received. There is evidence, also, that his efforts were appreciated at headquarters, in his appointment, jointly with the Laird of Earlsall, to the office of sheriff-depute of Dumfriesshire in March, 1679.

For some years thereafter the position of Graham was perhaps as difficult and delicate as one man was ever called upon to occupy. In the midst of enemies, and in virtue of the most erroneous but direct orders of his government, he combined the functions of soldier, spy, prosecutor and judge. Shortly after the murder of Archbishop Sharp, on May 5, 1679, he was summoned to increased activity. There were reports of an intended gathering in the neighborhood of Glasgow, and at the head of his dragoons Graham went in pursuit of the rebels. On Sunday, June 1st, the Covenanters having removed from London Hill to a well protected position upon the marshy ground of the farm of Drumclog, Graham, who had gone in search of them, advanced. Headed by the youthful Clelland, the Covenanters charged the cavalry, who in a little while turned and fled. The loss of the victors was but three men, while thirty-six dragoons were killed, Graham himself having a narrow escape. This was the only regular engagement he had with the Covenanters. Small as it was, the result

raised an enthusiasm in the bosoms of the victors, and was the beginning of an actual rebellion.

On June 22d, Graham was present at the battle of Bothwell Bridge, at the head of his own troop. Immediately thereafter he was commissioned to search the southwestern shires for those who had taken part in the insurrection. In this duty he seems to have been engaged till the early part of 1680, when he disappears for a time from the record of these stringent measures. His powers during these months were of the most sweeping description; and it appears that his ample commission was most slenderly used. The gravest accusation against him in reference to this period is that he was a robber.

Graham had for some time been recognized as an adherent of the party who were adverse to measures of leniency and conciliation. During these months he was accordingly dispatched to London, along with Lord Linlithgow, to influence the mind of Charles II. against the indulgent method adopted by Monmouth with the extreme Covenanting party. It is perhaps not to his credit that he succeeded in the object of his mission. He was then in the prime of life, was commandingly handsome in appearance, a lover of sport, and a devoted royalist. Charles seems to have been fascinated by his loyal supporter, and from that moment Graham was destined to rise in rank and honors. On April 21, 1680, he obtained a royal grant of the barony of the outlawed Macdowall of Freugh, and the grant was confirmed by subsequent orders upon the Exchequer in Scotland. In April, 1680, it appears that his roving commission had been withdrawn by the Privy Council. He is thus free from all concern with the severe measures which followed the Sanquhar Declaration of June 22, 1680.

The turbulence occasioned by the passing of the Test Act of 1681, required to be quelled by a strong hand; and in the beginning of the following year Graham was again commissioned to act in the disaffected districts. In the end of January he was appointed to the sheriffships of Wigtown, Dumfries, Kirkcudbright, and Annandale. He was besides acting captain of a troop of dragoons—the pernicious combination of his offices being thus repeated. He appears further to have had powers of life and death in virtue of a commission of justiciary granted to him about the same time. In his dispatches there are indications that he disapproved of a system of indiscriminate punishment, and desired that severe vengeance should only be executed upon ring-leaders and men of rank. This, however, applied solely to the harshest measures then known to the law, those of torture and death. Where these were involved he preferred, after hunting out and seizing his prisoners, to send them to Edinburgh for trial. But within these limits his methods of procedure in the large districts over which he had control were uncompromising, and, if we suppose him to have had sympathy with his orders, most cruel. He quartered on the rebels, rifled their houses, and, to use his own words, “endeavored to destroy them by eating up their provisions.”

In June, 1684, he was again at his old employment—the inspection of the southern shires; and in August, after the ambuscade of Enterkine-hill, he was commissioned as second in command of the forces in Ayr and Clydesdale to search out the rebels and report to headquarters. By this time he was in possession of Dudhope, having, on June 10th married Lady Jean, daughter of Lord Cochrane.

In May, 1685, he was ordered with his cavalry to guard the borders, and to scour the southwest in search of rebels. By Act of Privy Council, a certificate was required by all persons over sixteen years of age to free

them from the hazard of attack from government officials. Without that they were at once liable to be called upon oath to abjure the declaration of Kenwick, which was alleged to be treasonable. While on this mission he pursued and overtook two men — John Brown, and a nephew whom he calls John Brownen. Brown, having refused the abjuration oath, was shot dead. The order was within the authorized power of Graham.

Until 1688 there is little more of note in his career. In 1686 he was promoted to the rank of major-general, and had added to his position of constable the not inconsiderable dignity of provost of Dundee. He appears, however, in the Privy Council in 1688, opposing the proposal that Lieutenant-General Douglas should have command of the whole army which had been ordered to England to aid the falling dynasty.

A week or two after his departure with the army his fascinating influence had made itself felt upon James II., and amid the hurry of events he was created viscount of Dundee November 12, 1688. From York he went to Salisbury, where he advised James to sterner measures than the feeble-hearted monarch had the courage to adopt. Throughout the vexed journeyings of the king, Dundee is found accompanying or following him, endeavoring in vain to prompt him to make his stand in England and fight rather than flee from the invader. At last James announced his resolve, with the promise that he would send from France an appointment in favor of Dundee to command the troops in Scotland, and arrangements were entered into for communication with the voluntary exile.

Dundee returned to Scotland in anticipation of the meeting of the convention, and at once exerted himself to increase the waning resolution of the Duke of Gordon with regard to holding Edinburgh Castle for the exiled king. He had conceived the idea of forming a rival convention at Stirling to sit in the name of James II., but the hesitancy of his associates rendered the design futile, and it was given up. Dundee, however, boldly appeared at the first meeting of the Convention March 16, 1686, and disclosed a plot which he declared he had discovered against his own life, but the matter after some inquiry was departed from.

On March 18th, despising the fears of his promised allies, he left Edinburgh at the head of a company of fifty dragoons, who were strongly attached to his person. He was not long gone ere the news was brought to the alarmed Convention that he had been seen clambering up the west side of the castle rock and holding conference with the Duke of Gordon. In excitement and confusion order after order was dispatched in reference to the fugitive, and the Convention sat with locked doors to prevent communication with traitors without. Dundee retired to Dudhope. On March 30th he was publicly announced as a traitor, and in the latter half of April attempts were made to secure him at Dudhope, and the residence in Glen Ogilvy to which he had retired. But the secrecy and speed of his movements outwitted his pursuers, and he retreated to the north. His career presents strange peculiarities. It was only in 1678 that he had returned to Scotland from abroad. Yet in the short period of intervening years he had, despite the opposition of his superiors in rank, risen from the post captain, and the social status of a small Scotch laird, to positions as a soldier and statesman and the favorite of his sovereigns, of the greatest dignity, influence, and wealth. Yet it was in this period that he committed those acts on account of which his memory is loaded with reproach. When the ruling dynasty changed, and he who had so often been commissioned to quell insurrection had himself become an outlaw and a rebel, he supported the cause of his exiled

monarch with such skill and valor that his name and death are recorded as heroic.

On his march into the Highlands he commenced among the chieftains the diplomatic policy in which he excelled. General Hugh Mackay was now in the field against him, and what was simply a Highland chase began. Mackay started with a body of cavalry, marched to the north, and having refused reinforcements from the untrained peasantry of Aberdeenshire, pushed the pursuit further and further to the west. Elgin, and latterly Inverness, were occupied by the Government troops. Dundee had in the mean time been scouring the country from Perth, which on May 11th he had plundered, to the wilds of Lochabar, to which he had latterly retired. The clans were assembled by May 28th, and on the 29th the castle of Ruthven, near Kingussie, was seized. The army of Dundee was now much superior in numbers to that of Mackay, and the prudent general beat a hasty retreat. Having received reinforcements, however, he again advanced northward, and in Strathdon, in the early part of June, it seemed likely that the opposing forces would meet. But the Highland warriors, laden with plunder, were returning homeward, and the army of Dundee was melting away. The outlawed leader again retired, and Mackay conceived his mission at an end. He proceeded westward, and, having garrisoned Inverness, marched to the south.

Throughout the whole of the campaign Dundee was indefatigable in his exertions with the Highland chiefs and his communications with his exiled king. To the day of his death he believed that formidable succor for his cause was about to arrive from Ireland and France. He justly considered himself at the head of the Stewart interest in Scotland, and his dispatches form a record of the little incidents of the campaign, strangely combined with a revelation of the designs of the statesman. It mattered little to him that on July 24th a price of £20,000 had been placed upon his head. The clans had begun to reassemble, and he was now in command of a considerable force.

Mackay, who had visited Edinburgh to report events, returned to Perth, whence with an army now amounting to about 4,000 men, he proceeded to Dunkeld on July 26th. While in the metropolis he had endeavored to secure the Athole interest, and that the castle of Blair should be held for King William. But he was as usual outwitted by Dundee, who, after unsuccessful negotiations with Lord Murray, won over the Athole factor by the presentation of a commission prepared for the occasion. The castle was at once occupied, and at Dunkeld Mackay received intelligence that the design of his march was frustrated. By 10 A.M. of July 27, 1689, he was at the entrance to the pass of Killiecrankie.

Dundee had appointed a gathering of the class at Blair for the 26th; and on the 27th, he was at the head of at least 2,000 men, including a contingent from Ireland. The reports of scouts that 400 of the enemy had already threaded the pass, roused the impatience of the chiefs. But it was not until he received intelligence that the whole army of Mackay had entered the defile that he gave the order to march. With caution he disposed his troops on the hills to the right of the opposing army, which, making its exit from the gully, was forming on the haughs. On Mackay's right and beyond the narrow plain were undulating heights backed by Craig Culloch. On one of these Mackay was astonished to observe the movement of the troops of Dundee. To prevent the enemy from gaining an intervening eminence, he at once ordered a flank movement, and his army marched up the face of the hillock, leaving the Garry in the rear. For several hours the two armies faced each other, Dundee restraining the

impatience of his troops, but at eight in the evening order was given to advance. Mackay had formed his line three deep, while his opponent had arranged his men in battalions with intervals wide enough to prevent the outflanking of superior numbers. The Highlanders having discharged their firelocks threw them on the ground, and rushed impetuously on the foe. The result was instantaneous; Mackay's line was broken and driven helplessly into the gorge. Dundee, at the head of his cavalry, charged the enemy, but, confusion having arisen as to the leadership of the troop, he was not at once followed. The gallant soldier, waving on his men, was pierced beneath the breast-plate by a bullet of the enemy, and fell dying from his horse. Dundee asked "how the day went," and, hearing the answer and expression of sympathy, replied that "it was the less matter for him, seeing the day went well for his master." He was conveyed to the castle of Blair, where within an hour or two of his death he was able to write a short account of the engagement to King James. The battle, in which the Government forces had lost 2,000 men as against 900 of the enemy, was in truth the end of the insurrection. The Highland camp was broken by jealousies; for the controlling and commanding genius of the rebellion was no more.

DUNDONALD, THOMAS COCHRANE, TENTH EARL OF, known during his brilliant naval career as Lord Cochrane, was born at Annsfield, in Lanarkshire, on December 14, 1775. At the age of seventeen Lord Cochrane joined the navy on board the *Hand*, of which his uncle, afterward Admiral Sir Alexander Cochrane, was at the time captain. In 1795 he was transferred with his uncle to the frigate *Thetis*, which proceeded to the North American station. Soon afterward he received his lieutenant's commission; and in 1798 he was sent to the Mediterranean to serve in the fleet under the command of Lord Keith. He had already begun to show that rare combination of daring and prudence which probably no British naval officer, save Nelson, ever possessed to a greater degree. As commander of the sloop *Speedy*, to which he was appointed in 1800, he performed a series of exploits in capturing vessels of immensely larger size than his own, which are almost without parallel in the annals of naval warfare. The little *Speedy*, with its miserably weak armament of four-pounders, became the terror of the Spanish coasts, and more than once she was hounded by a frigate being especially detached to capture her. One of the attacks she ingeniously evaded; another she boldly met (February 28, 1801), and actually succeeded in capturing her opponent, the *El Gamo*, a Spanish frigate of thirty-two guns. Her cruise of thirteen months, during which she took upward of fifty vessels with 122 guns and 534 prisoners, ended in her own capture by three French line of battle ships, after making so gallant a resistance that the French captain, to whom Cochrane delivered up his sword, at once returned it. After a brief imprisonment, Lord Cochrane was exchanged. The promotion to post-rank, to which he was fully entitled, came somewhat tardily in August, 1801; and the persistence with which his claims had to be urged laid the foundation of the bad understanding with the authorities at the Admiralty that caused him to be lost to British service a few years later, while he was still in his prime, its immediate result being that he was refused further employment. He spent the period of leisure (1802) at the University of Edinburgh, where he wisely endeavored to repair the defects of his early education. The renewal of hostilities, in 1803, brought him the opportunity of such distinction as was likely to be gained in the command of the *Arab*, an utterly unworthy old collier purchased into the navy, in which

he was sent to take part in the blockade of Boulogne. The animus against him in official circles was clearly shown when, on complaining that his vessel was unfit for service, he was sent to the North Sea to protect non-existent fisheries! In 1804, on the advent of Lord Melville to the head of the Admiralty, tardy justice was done by his appointment to the command of the new frigate *Pallas*, in which, after making several valuable prizes within ten days, he entered Plymouth harbor in charge of them, with three golden candlesticks, each five feet high, at the mastheads as a sample of the spoils. Before the *Pallas* was again sent to sea her fortunate captain was returned to Parliament as member of Honiton, partly through the influence of his fame, but still more through the influence of his prize-money. In her second cruise, the *Pallas*, after convoying a merchant fleet to Quebec, returned to the coast of France, where she cut out and captured several of the enemy's corvettes, and destroyed many of the signals. In August, 1806, Lord Cochrane was transferred to the command of the *Imperieuse*, in which during the succeeding two years he did immense damage to the enemy's fleet in the Bay of Biscay and the Mediterranean. One of his most gallant exploits during this period was his defense of Fort Trinidad, near Rosas, which he held for twelve days (November, 1808,) against overwhelming odds. When he found further resistance impossible he blew up the magazines and returned to his ship.

Meanwhile, though his services were so distinguished, his relations with the Admiralty had not become more friendly.

In 1809, however, the authorities had occasion for a daring service which he alone was found competent and willing to undertake. It had been suggested to them that the French fleet blockaded in Basque Roads might be destroyed by means of fire ships, and the hazardous duty was intrusted to Cochrane. On the night of April 11th he personally piloted the vessels loaded with explosives to the entrance of the harbor, where they spread such terror that seven French frigates slipped their cables and ran on shore, five of them being afterward destroyed. Unfortunately, this success was not followed up as it ought to have been. Lord Gambier, the commander of the blockading fleet, ignoring the repeated and urgent requests of Cochrane, refused to order a general attack, and thus the opportunity of destroying the whole of the enemy's ships was lost. Lord Cochrane was bitterly disappointed, and made no attempt to conceal his opinion of the incompetency of his superior, who found himself compelled to demand a court martial. The trial was worse than a mockery; the court was packed, witnesses were manipulated, and charts fabricated—with the scandalous result that Gambier was acquitted and Cochrane by implication disgraced. There was, of course, no further professional employment for one who had been stigmatized as a false accuser. For four critical years Lord Cochrane held no command, and his country lost the services of one of the few naval heroes she has had worthy to be named along with Nelson. In 1814 an unfortunate occurrence of circumstances, suspicious in themselves, though capable of a satisfactory explanation, led to his being accused, along with several others, of conspiracy to defraud the Stock Exchange, by circulating a false report of the success of the Allies and the death of Napoleon. He had only a week or two before so far overcome the disfavor with which he was regarded by the Admiralty as to secure the appointment to the command of the *Tonnant*, the flag-ship of his uncle, Sir Alexander Cochrane, but he had to resign the position in order to meet the prosecution which the

Government was not slow to institute. The trial was conducted before Lord Ellenborough, a noted partisan, who, if he did not, as Cochrane's friends have insinuated, exceed the limits of his office in order to secure a conviction, certainly showed no favor to the accused, who were all found guilty. Lord Cochrane was sentenced to a fine of £1,000, twelve months' imprisonment, and an hour in the pillory. His ruin and disgrace were completed by his being expelled from the House of Commons, and deprived, with the usual humiliating ceremony, of the knighthood of the Bath, which had been bestowed on him after his heroic services at Basque Roads. Popular sympathy, however, was strongly with him. An influential minority of forty-four voted against his expulsion from the House of Commons, and, when a new writ was issued for Westminster, he was unanimously returned, no one having ventured to stand against him. A public subscription was raised by his constituents for the payment of his fine. His colleague, Sir Francis Burdett, pledged himself to stand along with him in the pillory if that part of the sentence was carried out, and the Government judged it prudent to remit it. Lord Cochrane's conduct was, throughout, that of an innocent, if somewhat imprudent, man. At his trial he volunteered a full explanation of the suspicious circumstances that were urged against him, and, after his conviction, he took every opportunity of protesting against the injustice that had been done him, and was urgent in his demand for a new inquiry. During the currency of his sentence he contrived to make his escape from prison, and took his seat in the House of Commons, from which he was forcibly removed by the warden and officers of the King's Bench.

At the close of his imprisonment Lord Cochrane soon found that there was little hope of his being again actively engaged in the service of his native country. The peace that followed Waterloo promised to be enduring, and, even had it been otherwise, he could not expect employment, as his name had been struck off the navy list. When, therefore, the command of the fleet of the republic of Chili was offered to him in 1818, he at once accepted it, finding a congenial task in the endeavor to aid a weak state in its struggle for freedom. He arrived at Valparaiso in November, 1818, and in a short time afterward he was ready for action, though the fleet under his command was in every respect miserably weak when compared with that of Spain, to which it was opposed. It is impossible to detail all his marvelous exploits. Two, however, must be specially mentioned as among the most extraordinary achievements in the annals of naval warfare. On February 2, 1820, he captured Valdivia, a very strongly fortified town and harbor in the possession of the Spaniards, the forces under his command consisting of his own single frigate and 250 land troops in three small vessels. The place yielded to the mere terror of his name, the handful of troops that obtained possession of it being insufficient to man its guns or even to keep its civil population in order. In the autumn of the same year he blockaded the harbor of Callao, one of the strongest in the world. Within it, fixed to chain mooring, protected by twenty-seven gunboats, and covered by the fire of no less than 300 guns in the batteries, lay the Spanish frigate *Esmeralda*. The ambition of Lord Cochrane was fired by the apparent impossibility of the task, to attempt his favorite exploit of cutting out. The attempt was made on the night of November 5th, and, in spite of the apparent impossibility, it was completely successful after a sharp engagement of a quarter of an hour's duration, in the course of which Lord Cochrane was severely wounded. The moral effect of this achievement

upon the Spaniards was all that Cochrane had anticipated; they were completely paralyzed, and left their daring opponent undisputed master of the coast. Unfortunately, just at the time when he was rendering her these signal services, the jealousies and intrigues of various members of the Chilian Government were making Lord Cochrane's position uncomfortable, if not untenable. The withholding of prize-money, and even of pay, had nearly caused a mutiny in the fleet, when Lord Cochrane, by taking strong measures to obtain part of what was due to his men, brought on an open rupture between himself and the Government. An invitation from the regent of Brazil to undertake the command of his fleet against the Portuguese was, therefore, accepted as a welcome deliverance. Lord Cochrane entered on his new duties at Rio de Janeiro in March, 1822. His services to Brazil were quite as important, though scarcely marked by so many brilliant episodes as those to Chili, and they were in the end equally ill-requited. His daring capture of Maranham with a single frigate, in July, 1823, added a province to the newly-formed empire; and the value of the accession was acknowledged by the title of Marquis of Maranham being conferred upon the captor, along with an estate, of which, however, Lord Cochrane never obtained possession. In fact, both by Chili and Brazil he was unjustly defrauded of all substantial rewards, and his connection with the new empire, which he had done so much to aid in establishing, was ignominiously terminated by his dismissal from her service in 1825. He had given some provocation to this by his obstinacy in refusing to appear at a court-martial, and account for his conduct in taking the frigate under his command to England without orders. The Brazilian Government itself, however, practically admitted the gross injustice with which it had treated him by awarding him, twenty years afterward, the pension that had been agreed upon in the first engagement made with him.

On his return to England Lord Cochrane found himself the object of a popularity that had grown rather than abated during his absence. His great achievements had been spoken of in the warmest terms in the House of Commons by Sir James Mackintosh, who urged the Government to restore him to his place in the service of his native land. But the time for the redress of his wrongs was not yet; and, finding inaction impossible, he gladly gave his services to the cause of Greek independence. Appointed by the National Assembly admiral of the Greek fleet, he found himself for the first and only time in his career in a position where success was impossible even for him. The want of union and discipline among the Greek troops frustrated all his plans, and an attempt to relieve the Acropolis at Athens in 1827 ended from this cause in a disastrous failure, Lord Cochrane only escaping by jumping into the sea. In 1828, after the great Powers had secured the recognition of the independence of Greece, he returned to England.

With the accession of King William and the formation of a Liberal ministry there came at last a tardy and imperfect reparation to Lord Cochrane for the injustice he had suffered. He was restored to his rank in the navy, but with this he had to remain content. It was with bitter and indignant feelings that he found himself compelled to accept a pardon under the Great Seal instead of the new trial he had long and vehemently demanded. And the restoration to his rank was robbed of much of its grace by the fact that the honor of the knighthood of the Bath, of which he had also been deprived, was not restored at the same time, and that the arrears of his pay were withheld. In 1831 he succeeded his father in the earldom of Dundonald. On Novem-

ber 23, 1841, he became vice-admiral of the blue. Another installment of the lingering atonement that was due to him was paid in 1847, when the honor of knighthood of the Bath was restored, though, by that strange fatality which seemed to have decreed that no reparation made to him should be complete, his banner was not replaced in the chapel of the order until the day before his burial. In 1848 he was appointed to the command of the North American and West Indian station, which he filled until 1851. Immediately after his return he published *Notes on the Mineralogy, Government, and Condition of the British West India Islands*. When unfitted by advancing age for active service, he busied himself with scientific inventions for the navy, such as improved poop and signal lights, improved projectiles, etc. During the Russian war he revived secret plans which he had detailed to the prince regent nearly fifty years before for the total destruction of an enemy's fleet, and he offered to conduct in person an attack upon Sebastopol and to destroy it in a few hours without loss to the attacking force. That his intellect remained clear and vigorous to the close of his life was shown by the publication, in his eighty-fourth year, of his *Narrative of Services in the Liberation of Chili, Peru, and Brazil* (1858), and of his *Autobiography*, in two volumes, the second of which appeared just before his death. The literary style of both works is admirably appropriate to his subject—simple, lucid, and dashing—and the story they tell is one of heroism and adventure that has scarcely its parallel even in romance. The author's burning sense of his wrongs, and his passionate desire for a thorough vindication, reveal themselves at every turn. If he is not unnaturally blind to the fact that his own imprudence and want of self-command contributed in some small degree to his misfortunes, no one will now deny that this "heroic soul branded with felon's doom" suffered more cruel and undeserved wrongs than ever fell to the lot of any warrior of his genius and achievements.

Lord Dundonald died at Kensington, October 30, 1860, and was buried in Westminster Abbey.

DUNEDIN, a city in New Zealand, at the head of Otago harbor, an arm of the sea on the east coast of the South Island. It is the capital of the late province and present provincial district of Otago, and was founded as the chief town of the Otago settlement by settlers sent out under the auspices of the Lay Association of the Free Church of Scotland in 1848. The discovery of large quantities of gold in Otago in 1861 and the following years, and the great increase in the production of wool, have made Dunedin a very flourishing place. Population, 35,000.

DUNFERMLINE, a city and royal burgh of Scotland, situated in the western district of the County of Fife, about three miles from Limekilns, the nearest point on the Firth of Forth. It is connected with Glasgow by railway *via* Stirling, and with Edinburgh, from which it is distant sixteen miles, both *via* Thornton and by a direct line constructed in 1877 to North Queensferry.

DUNFERMLINE, LORD. See ABERCROMBY.

DUNGANNON, a parliamentary borough and market-town of Ireland, in the county of Tyrone, standing on an acclivity eight miles west of the southwestern shore of Lough Neagh, and ninety-four miles northwest of Dublin.

DUNGARVAN, a parliamentary borough, market-town, and seaport of Ireland, in the County Waterford, 125 miles southwest of Dublin.

DUNKELD, a burgh of barony and market-town of Perthshire, Scotland, situated on the north bank of the Tay, fifteen miles north-northwest from Perth.

DUNKERS, or TUNKERS, a sect of American Baptists originating in Germany. The name, as its second form indicates, is a nickname meaning *dippers*, from the German *tunken*, to dip. From the first the members recognized no other name than "Brethren." The founder of the sect was Alexander Mack Schwartzau, who, along with one or two companions, was led to adopt anti-pædobaptist views about the year 1708. It had scarcely assumed organized existence in Germany when its members were compelled by persecution to take refuge in Holland, from which they emigrated to Pennsylvania in small companies in the years between 1720 and 1729. Their first community was established at Germantown, not far from Philadelphia, and other settlements were gradually formed in New England, Maryland, Virginia, Ohio, and Indiana. In the early history of the sect the sexes dwelt apart, and marriage, while not forbidden, was discouraged. Similarly, while the holding of private property was not absolutely prohibited, a certain community of goods was established and maintained by the voluntary action of the members, and it was considered unlawful to take interest for money. These features have now disappeared, but in other respects the sect retains much of its original character. Every member has the right to exhort and take part in the religious services, and for a considerable period no special provision was made for the conduct of worship. There is now, however, a recognized unpaid ministry of bishops and teachers. There are also deacons and deaconesses. In baptism trine immersion is used. The Lord's Supper is observed in the evening only, and connected with it are the *lavipedium*, or ceremonial feet washing, and the apostolic "love-feasts." Putting a literal interpretation on James v, 14, they practice the anointing with oil for the healing of the sick, and many of them will not adopt any other means of recovery. They resemble the Quakers in their plainness of speech and dress, and their refusal to take oaths or to serve in war. Their number, which at one time was estimated at 30,000, has very considerably declined, and the latest account states it at less than 8,000. An early offshoot from the general body of Dunkers were the Seventh Day Dunkers, whose distinctive principle, as their name imports, was that the seventh day, and not the first day, of the week was the true Sabbath intended to be perpetually and universally observed. Their founder was Conrad Peyser, one of the first emigrants, who established a settlement at "Ephrata," about fifty miles from Pennsylvania, in 1733. This branch of the sect has almost died out.

DUNKIRK, or DUNKERQUE, a strongly fortified seaport town of France, and capital of an arrondissement in the department of Nord, is situated on the Straits of Dover, forty miles northwest from Lille, and 194 north from Paris. It is a well-built town, the streets being large, wide, and regular. Dunkirk is both a naval port and one of the merchant ports of Paris, and has two harbors, its maritime trade employing about 5,000 vessels with a tonnage of 270,000. The docks occupy about 100 acres.

DUNKIRK, a lake-port town of the United States, in Chautauqua County, New York, situated on a small bay in Lake Erie, forty miles southwest of Buffalo. It is an important station on the Lake Railroad, and forms the western terminus of the Erie line; and by means of the Carrollton Railroad it has connection with the Pennsylvania coal-fields. The town occupies an elevated and agreeable position on the lake, and its harbor is free of ice earlier in the spring than the neighboring port of Buffalo. The industries of the place comprise oil-refining, and the manufacture of glue, flour, and iron-work. Population, 1889, about 10,000.

DUNMOW, GREAT, a market town of England, in Essex, situated on a *via militaris*, some remains of which still exist.

DUNMORE, a railway and telegraph town of Lackawanna County, Pennsylvania. Population, 5,500.

DUNNING, JOHN, BARON ASHBURTON (1731-1783), an eminent English lawyer.

DUNOIS, JEAN, Count of Orleans and Longueville, commonly called the "Bastard of Orleans," a celebrated French warrior and grand-chamberlain of France, was the natural son of the Duke of Orleans (brother of Charles VI.) and Mariette d'Enghien, Madame de Cany, and was born at Paris November 23, 1402. He was brought up in the house of the duke, and in company of his legitimate sons. His earliest feat of arms was the surprise and rout in 1427 of the English, who were besieging Montargis—the first successful blow against the English power in France following a long series of French defeats. In 1428 he threw himself into Orleans, and was the principal means of enabling the garrison to hold out until the arrival of Joan of Arc, when he shared with her the honor of defeating the enemy there in 1429. He then accompanied Joan to Rheims, and shared in the victory of Patay. After her death he raised the siege of Chartres and of Lagny, and drove the English from Paris, which he entered in triumph on April 13, 1436. The English retreated gradually into the Isle of France, and thence into Normandy; and Dunois, having in 1449 been raised to the rank of lieutenant-general, soon conquered from them the whole of that province. In 1451 he attacked them in Guienne, taking among other towns Bordeaux, which the English had held for 300 years. At the conclusion of these conquests Charles VII. legitimated him, and gave him the title of defender of his country, and the office of grand chamberlain; but on the death of Charles, Louis XI. deprived him of his titles and dignities. He then joined the league of revolted princes, but was reinstated in the king's favor. He died November 28, 1468.

DUNOON, a town in Argyllshire, Scotland, situated on the Firth of Clyde, about nine miles west from Greenock, and on the opposite shore.

DUNS SCOTUS, JOHN, one of the foremost of the schoolmen, was born in the latter half of the thirteenth century. The year and place of his birth are both uncertain. It is noteworthy as a curiosity of literature, that Dempster published a quarto volume, the main object of which was to prove by twelve distinct arguments that Duns Scotus was a Scotchman. It is said that when he was a boy his extraordinary ability was observed by two Franciscan friars, who took him to their convent at Newcastle. Whether this be so or not it seems certain that he joined the Franciscan order in early life, and that he studied at Merton College, Oxford, of which he was made a fellow. According to Wadding, he became remarkably proficient in all branches of learning, but especially in mathematics. When his master, William Varron, removed to Paris, in 1301, Duns Scotus was appointed to succeed him as professor of philosophy. His lectures attracted an immense number of students, though the story that in his day the university was attended by no less than 30,000 is probably an exaggeration. He was removed to Paris, probably in 1304, though the precise date is uncertain. In 1307 he received his doctor's degree from the University of Paris, and in the same year he was appointed regent of the theological school. His connection with the university was made memorable by his defense of the doctrine of the Immaculate Conception, in which he displayed such dialectical ingenuity as to win for himself the title *Doctor Subtilis*. According to the ac-

count that is usually given he refuted one by one no less than two hundred objections urged against the doctrine by the Dominicans, and established his own position by "a cloud" of arguments. The doctrine continued long to be one of the main subjects in dispute between the Scotists and the Thomists, or, what is almost the same thing, between the Franciscans and the Dominicans. To judge from its subsequent acts, the University of Paris seems to have been deeply and lastingly impressed by the arguments of Duns Scotus. In 1387 it formally condemned the Thomist doctrine, and a century afterward it required all who received the doctor's degree to bind themselves by an oath to defend the doctrine of the Immaculate Conception. In 1308 Duns Scotus was sent by the general of his order to Cologne with the twofold object of engaging in a controversy with the Beghards and of assisting in the foundation of a university. He was received with great ceremony by the magistrates and nobles of the city. After a very short residence, however, he died of apoplexy, on November 8, 1308. The story told by Paulus Jovius, that on his grave being opened some time after his death his body was found to have turned in the coffin, from which it was inferred that he had been buried alive, is generally regarded as fabulous.

The works of Duns Scotus were very numerous, though in the collections edited by Luke Wadding, a Franciscan, several are ascribed to him without sufficient ground. This edition contains a life full of legends, which was reprinted separately (Mons, 1644). The most important of the works of Duns Scotus consisted of questions and commentaries on the writings of Aristotle, and on the *Sentences* of Lompark.

DUNSTABLE, a market-town and, since 1864, a municipal borough of England, in the County of Bedford, thirty-three miles northwest of London, and eighteen miles south-southwest of Bedford, with communication by both the North-Western and the Great Northern Railways.

DUNSTAN, ST., was born at Glastonbury in 924 or 925. His father, Heorstan, was brother of Ælfheah the Bold, Bishop of Winchester; and the tradition that he was connected with the royal house seems not improbable. As a child he was placed under the care of certain Irish teachers who had settled at Glastonbury; and he devoted his boyhood to study with a fervor so intense that he at length brought on himself a severe attack of brain fever, the effects of which are apparent in the fantastic visions which troubled his after life. He was still a boy when he entered the household of Athelstan, and he was only fifteen or sixteen at the accession of Edmund; but he had not been long at court before his ambitious and lofty temper had surrounded him with bitter enemies. In all the accomplishments of his time, except those of the warrior, he stood preëminent. His memory was stored with the ancient Irish ballads and legends, and he excelled in music, in painting, and even in the mechanical arts. But he soon found that his talents, while making him a favorite in the ladies' bowers, only inflamed the jealousy of his rough, ignorant soldier rivals. He was accused of dealing in witchcraft, was driven with rude force from the court, and, perhaps under the pretext of testing whether he was really wizard or no, was flung into a muddy pond, whence he was glad to escape to the protection of his uncle Ælfheah. The result of this outrage was a second attack of fever, from which he rose to yield to his uncle's persuasions, and take the vows as a monk. It was with great reluctance that he took this step, for he was deeply in love with a lady at court; but the feeling, natural in that age, that his illness was a direct indication of the will of Providence, was likely to impress

itself with peculiar force upon an imagination such as his, and he was also, doubtless, conscious that the only protection for his physical weakness lay in the power of the Church. After his recovery, he spent some time quietly studying and teaching, and practicing the austerities which gained him the reputation of a saint; but it was not long before he returned to court. Again his enemies seemed likely to prove too powerful for him. He, however, gained the favor of King Edmund, who created him Abbot of Glastonbury when he was about twenty-two years of age. He became principal treasurer of the kingdom, and we find him a few years later (953), on account of his tenure of that office, refusing an offer of the See of Crediton.

From 946 to 955, the throne was occupied by Eddred, whose constant ill health threw the chief power into Dunstan's hands. In 955 Edwy came to the throne; and the party of Edgiva, to which Dunstan belonged, lost its influence. Of the details of the party struggles which ensued we have no trustworthy information; but one incident of the quarrel between the king and the minister has become famous. Edwy, though then probably a mere boy, was deeply in love with his kinswoman Elgiva, whose mother, Ethelgiva, a lady of the highest rank, is accused, with what degree of truth cannot now be determined, of having used the most shameful means to gain power over the young king. What relationship really existed between Edwy and Elgiva is unknown, but it was such as to be considered by the churchmen as an insuperable bar to marriage. Edwy, however, defied their opposition. On the evening of his coronation he withdrew from the banquet to the society of Elgiva. Dunstan was sent by the Witan to recall him, and exhibited a violence which may be excused, when we consider that Edwy had both grievously insulted the Witan and openly sought, upon so solemn an occasion, the dangerous society of a girl whom the Church forbade him to marry.

A year or so after Ethelgiva and her party triumphed, and Dunstan, being outlawed, was obliged to flee to Ghent. In 957, however, a revolt placed Edwy's brother Edgar on the throne of Mercia and Northumbria, and at his court Dunstan resumed his old position of chief minister. He was created bishop (perhaps at first without a See); and, in defiance of strict ecclesiastical law, he obtained and held at once the Sees of Worcester and London. By the death of Edwy, in 959, Edgar gained the sovereignty of Wessex; and a few months after Dunstan was appointed Archbishop of Canterbury. On the death of Edgar (955), Dunstan's influence secured the crown for Edward. But a fierce struggle ensued between Dunstan and his enemies. In 977, the Witan met three times; and the last meeting, that at Calne, was signalized by an accident, which the friends of Dunstan called a miracle. Half the floor of the room in which the Witan was assembled gave way at the moment that Dunstan was making a solemn appeal to God, so that the enemies of Dunstan fell, and Dunstan and his friends remained unhurt. This accident has been explained by reference to the archbishop's well-known skill in mechanics. During the first few years of the unhappy reign of Ethelred the Unready, Dunstan probably retained some influence in the government; and it is noteworthy that the year of his death (which took place on May 19, 988), marks the commencement of the most disastrous invasions of the Danes. Toward the close of his life Dunstan is said to have retired from the court, and his last years were devoted to religious observances and the composition of sacred music, his favorite amusement being, as of old, the manufacture of bells and musical instruments.

DUNTON, JOHN (1659-1735), an eccentric booksel-

ler, publisher, and author, was born at Grafton, in Huntingdonshire.

DUPERREY, LOUIS ISIDORE (1786-1865), a French navigator and scientific investigator, was born at Paris, entered the navy in 1803, took part in the military operations of 1809 at Brest and Rochefort, and assisted in the hydrographical survey of the coast of Tuscany carried on during that and the following year. From 1817 to 1820 he served under Freycinet in his great voyage round the world, being intrusted with the hydrographic operations on board the *Urانيا*; and he contributed largely to the preservation of the crew and the scientific collections when his vessel was wrecked at the Malouin Islands. In 1822 he attained the rank of lieutenant, and was intrusted with the command of the *Cocille*, which during the next three years was engaged in scientific explorations in the South Pacific and along the coasts of South America. From this voyage he brought back not only great additions to cartography and important data in regard to the currents of the Pacific, but also numerous pendulum observations, serving to determine the magnetic equator, and to prove the equality of the flattening of the two hemispheres. During the rest of his life he devoted himself mainly to the investigation of terrestrial magnetism; and the value of his labors was recognized by his admission into the *Académie des Sciences* in 1842. He died in August, 1865.

DUPERRON, JACQUES DAVY (1556-1618), a celebrated French cardinal, was born at St. Lô, in Normandy. His father was educated for a physician, but on embracing the doctrines of the Reformation became a Protestant minister, and to escape persecution settled at Bern, in Switzerland. Here Jacques Davy received his education, being taught Latin and mathematics by his father, and learning without the aid of any one Greek and Hebrew and the philosophy which was then in vogue. At twenty years of age he came to Paris, and was presented to the king by the Count of Matignon; and after he had abjured Protestantism, being again presented by Philip Desportes, abbot of Tiron, as a young man without equal for knowledge and talent, he was appointed reader to the king. He was commanded to preach before the king at the convent of Vincennes, when the success of his sermon on the love of God, and of a funeral oration on the poet Ronsard, induced him to take orders. On the death of Mary, Queen of Scots, he was chosen to pronounce her eulogy, which, though it contained an attack on Elizabeth of England that the king thought it prudent to disavow, tended to advance both the ecclesiastic's fame and fortune. When the Cardinal de Bourbon, at the end of Henry III.'s reign, plotted to secure to himself the throne to the prejudice of Henry IV., Duperron is accused of having joined in the plot and revealed to Henry IV. its secrets. However that may be, when the plot failed, and Henry IV. mounted the throne, Duperron enjoyed the favor of that monarch, and in 1591 was created by him Bishop of Evreux. He converted Henry to the Catholic religion; and, after the taking of Paris, accompanied the Cardinal D'Ossat to Rome to obtain the removal of the interdict which had been passed upon France. On his return to his diocese, his zeal and eloquence were largely instrumental in withstanding the progress of Calvinism, and among others he converted Henry Sponde, who became Bishop of Pamiers, and the Swiss General Sancy. His success attracted the attention of the church, and he was chosen to represent it at Fontainebleau in 1600. In 1604 he was sent to Rome as "chargé d'affaires de France;" and, having hardly arrived when Clement VIII. died, he largely contributed by his eloquence to the election of Leo XI. to the Papal throne, and, on the death of Leo twenty-four days after,

to the election of Paul V. While still at Rome he was named archbishop of Sens, and the same year was made a cardinal. He died at Paris, September 6, 1618.

DUPIN, ANDRÉ MARIE JEAN JAKES, commonly called Dupin the Elder, a celebrated French advocate, president of the Chamber of Deputies and of the Legislative Assembly, was born at Varzy, in Nièvre, on February 1, 1783. In 1800 he was made advocate, and in 1802, when the schools of law were opened, he received successively the degrees of licentiate and doctor from the new faculty. When he entered the Chamber of Deputies in 1815 he at once took an active part in the debates, and strenuously opposed the election of the son of Napoleon as emperor after his father's abdication. At the election after the second restoration Dupin was not reelected. He defended with great intrepidity the principal political victims of the reaction, among others, in conjunction with Berryer, Marshal Ney; and in October, 1815, boldly published a tractate entitled *Libre Défense des Accusés*. In 1827 he was again elected a member of the Chamber of Deputies, and in 1830 took part in counseling the revolution, and in exhorting the citizens to resistance. In August of that year he became a member of Louis Philippe's cabinet, and more than any one else contributed to the formation of the new régime. At the end of 1832 he became president of the chamber, which office he held successively for eight years. On Louis Philippe's abdication in 1848 Dupin introduced the young Count of Paris into the chamber, and proposed him as king with the Duchess of Orleans as regent. This attempt failed, but Dupin submitted to circumstances, and, retaining the office of *procureur-général*, his first act was to decide that justice should henceforth be rendered to the "name of the French people." In 1849 he was elected a member of the Assembly, and became president of the principal committee—that on legislation. After the *coup d'état* of December 2, 1851, he still retained his office of *procureur-général*, and did not demit it till effect was given to the decrees confiscating the property of the house of Orleans. In 1857 he was offered his old office by the emperor, and accepted it, explaining his acceptance in a discourse, a sentence of which may be employed to describe his whole political career. "I have always," he said, "belonged to France and never to parties." He died November 8, 1865.

DUPIN, LOUIS ELLIES (1657-1719), a celebrated French ecclesiastical historian, belonged to a noble family in Normandy, and was born at Paris.

Dupin was a voluminous author. Besides his great work on ecclesiastical authors, mention may be made of *Bibliothèque Universelle des Historiens*, 2 vols. (1707); *L'Histoire de l'Eglise en Abrégé* (1712); and *L'Histoire Profane Depuis le Commencement du Monde Jusqu'à Présent*, 4 vols. 1712.

DUPLEIX, JOSEPH, governor-general of the French establishments in India, was born about the close of the seventeenth century. The son of a rich farmer-general, he was carefully educated, made several voyages to America and India, and in 1720 was named a member of the superior council at Pondicherry. He displayed great business aptitude, and, in addition to his official duties, made large ventures on his own account, and acquired a fortune. In 1730 he was made superintendent of French affairs in Chandernagore, the town prospering under his energetic administration and growing into great importance. His reputation procured him in 1742 the appointment of governor-general of all French establishments in India. His ambition now was to acquire for France vast territories in India; and for this purpose he entered into relations with the native princes, and adopted a style of Oriental gorgeousness in his dress

and surroundings. The English took the alarm. But the danger to their settlements and power was partly averted by the bitter mutual jealousy which existed between Dupleix and La Bourdonnais, French governor of the Isle of Bourbon. When Madras capitulated to the French in 1746, Dupleix opposed the restoration of the town to the English, thus violating the treaty signed by La Bourdonnais. He then sent an expedition against Port St. David (1747), which was defeated on its march by the nabob of Arcot, the ally of the English. Dupleix succeeded in gaining over the nabob, and again attempted the capture of Port St. David but unsuccessfully. A midnight attack on Cuddalore was repulsed with great loss. In 1748 Pondicherry was besieged by the English; but in the course of the operations news arrived of the peace concluded between the French and the English at Aix-la-Chapelle. Dupleix next entered into negotiations which had for their object the subjugation of Southern India, and he sent a large body of troops to the aid of two claimants of the sovereignty of the Carnatic and the Deccan. The English were engaged on the side of their rivals. After temporary successes the scheme failed. The conflicts between the French and the English in India continued till 1754, when Dupleix was recalled to France. He had spent immense sums out of his private fortune on account of the French company, but in opposition to their wishes, and vainly attempted to recover them from the Government. He appears to have died in obscurity and want about 1763.

DUPONT, PIERRE (1821-1871), a French songwriter of great popularity, the son of a workman of Provins, was born at Lyons, his mother's native city, but brought up from childhood under the care of an elderly cousin who occupied the position of priest of Roche-Taillée-sur-Saône. The thought of trying his fortune as a writer for the stage was taking shape in his mind, when in 1847 the success of his peasant song *J'ai Deux Grands Bœufs dans mon Étable* opened up another prospect of fame; and from that date to his death he confined himself mainly, though not exclusively, to the cultivation of his lyrical faculty. His lyrical poems may very fairly be arranged according to his own classification—rustic and, as far as the writer is concerned, objective, legendary and subjective, patriotic and contemporaneous.

DUPONT DE L'EURE, JACQUES CHARLES (1767-1855), a French lawyer and statesman, was born at Neubourg, in Normandy. From 1817 till 1840 he was uninterruptedly a member of the Chamber of Deputies, and he acted consistently with the liberal opposition, of which at more than one crisis he was the virtual leader. For a few months in 1830 he held office as minister of justice, but, finding himself out of harmony with his colleagues, he resigned before the close of the year and resumed his place in the opposition. At the revolution of 1848 Dupont de l'Eure was made president of the provisional government as being its oldest member. He died in 1855 at the age of eighty-eight. The consistent firmness with which he adhered to the cause of constitutional liberalism during the many changes of his times gained him the highest respect of his countrymen, by whom he was styled the Aristides of the French tribune.

DUPONT DE NEMOURS, PIERRE SAMUEL, a French political economist and statesman, was born at Paris on December 14, 1739. During the Revolution period he advocated reform and constitutional monarchy as against the views of the extreme republicans, and was therefore destined for vengeance when the republicans triumphed. After August 10, 1792, he was concealed for some weeks in the observatory of the Mazarin College,

from which he contrived to escape to the country. During the time that elapsed before he was discovered and arrested he wrote his *Philosophie de l'Univers*. Imprisoned in La Force, he was one of those who had the good fortune to escape the guillotine till the death of Robespierre set them free. As a member of the Council of Five Hundred, Dupont carried out his policy of resistance to the Jacobins, and made himself prominent as a member of the reactionary party. After the republican triumph on Fructidor 18 (September 4th), 1797, his house was sacked by the mob, and he himself only escaped transportation to Cayenne through the influence of M. J. Chénier. In 1799 he found it advisable for his comfort, if not for his safety, to emigrate with his family to the United States. On his return to France in 1802 he declined to accept any office under Napoleon, and devoted himself almost exclusively to literary pursuits. The consideration accorded to him in the United States was shown by his being employed to arrange the treaty of 1803, by which Louisiana was sold to the Union, and by his being requested by Jefferson to prepare a scheme of national education, which was published in 1812 under the title *Sur l'Éducation Nationale dans les États Unis d'Amérique*. Though the scheme was not carried out in the United States, several of its features have been adopted in the existing French code. On the downfall of Napoleon in 1814, Dupont became secretary of the Provisional Government, and on the restoration he was made a councilor of state. The return of the emperor in 1815 determined him to quit France, and he spent the close of his life with his two sons, who had established a powder manufactory in the State of Delaware. He died near Wilmington, Delaware, on August 6, 1817.

DUPUIS, CHARLES FRANÇOIS, an eminent French scientific writer, was born at Tryé-Chateau, between Gisors and Chaumont, October 26, 1742. While he was engaged in measuring a tower by the geometric method the Duc de la Rochefoucault met him, and, being struck with his intelligence, gave him a bursary in the College of Harcourt. Dupuis made such rapid progress in his studies that, at the age of twenty-four, he was appointed professor of rhetoric at the College of Lisieux, where he had previously passed as a licentiate of theology. In his hours of leisure he applied himself to the study of the law, and, in 1770 was admitted an advocate before Parliament. Two university discourses which he delivered, one on the occasion of the distribution of prizes, and the other on the death of the Empress Maria Theresa, having been printed, were admired on account of their elegant Latinity, and laid the foundation of the author's fame as a writer. His chief attention, however, was devoted to mathematics, the object of his early studies; and for some years he attended the astronomical lectures of Lalande, with whom he formed an intimate friendship. In 1778 he constructed a telegraph on the principle suggested by Amontons, and employed it in keeping up a correspondence with his friend M. Fortin in the neighboring village of Bagneux, until the Revolution rendered it necessary that he should destroy his machine to avoid suspicion.

Much about the same time, Dupuis formed his ingenious theory with respect to the origin of the Greek months. In the course of his investigations upon this subject, he composed a long memoir on the constellations, in which he endeavored to account for the want of any resemblance between the groups of stars in the heavens and the names by which they are known, by supposing that the zodiac was, for the people who invented it, a sort of calendar at once astronomical and rural, and that the figures chosen for the constellations were such as would naturally suggest the agricultural

operations of the season. It seemed only necessary, therefore, to discover the clime and the period in which the constellation of *Capricorn* must have arisen with the sun on the day of the summer solstice, and the vernal equinox must have occurred under *Libra*. It appeared to Dupuis that this clime was Upper Egypt, and that the perfect correspondence between the signs and their significations had existed in that country at a period of between fifteen and sixteen thousand years before the present time; that it had existed only there; and that this harmony had been disturbed by the effect of the precession of the equinoxes. He therefore ascribed the invention of the signs of the zodiac to the people who then inhabited Upper Egypt or Ethiopia. This was the basis on which Dupuis established his mythological system, and endeavored to explain the subject of fabulous history, and the whole system of the theogony and theology of the ancients.

Persuaded of the importance of his discoveries, which, however, were by no means entirely original, Dupuis published several detached parts of his system in the *Journal des Savants* for the months of June, October, and December, 1777, and February, 1781. These he afterward collected and published, first in Lalande's *Astronomy*, and then in a separate volume in 4to, 1781, under the title of *Mémoire sur l'Origine des Constellations et sur l'Explication de la Fable par l'Astronomie*. The theory propounded in this memoir was refuted by Bailly, in the fifth volume of his *History of Astronomy*, but, at the same time, with a just acknowledgment of the erudition and ingenuity exhibited by the author. Condorcet proposed Dupuis to Frederick the Great of Prussia, as a fit person to succeed Thiébauld in the professorship of literature at Berlin; and Dupuis had accepted the invitation, when the death of the king put an end to the engagement. The chair of humanity in the College of France having at the same time become vacant by the death of Bejot, it was conferred on Dupuis; and, in 1788 he became a member of the Academy of Inscriptions. He now resigned his professorship at Lisieux, and was appointed by the administrators of the department of Paris one of the four commissioners of public instruction. At the commencement of the Revolutionary troubles Dupuis sought an asylum at Evreux; and, having been chosen a member of the National Convention by the department of Seine-et-Oise, he distinguished himself by the moderation of his speeches and public conduct. In the third year of the republic he was elected secretary to the Assembly, and in the fourth he was chosen a member of the Council of Five Hundred. After the memorable eighteenth Brumaire he was elected by the department of Seine-et-Oise a member of the legislative body, of which he became the president. He had been proposed as a candidate for the senate when he resolved to abandon politics, devoting himself during the rest of his life to his favorite studies. He died September 29, 1809.

DUPUYTREN, GUILLAUME, BARON, one of the most distinguished of French anatomists and surgeons, was born October 6, 1777, at Pierre Buffière, a small town of Limousin. At the newly established *Ecole de Médecine*, under Fourcroy, he began the study of medicine with great diligence, and was appointed by competition prosector of the faculty when only eighteen years of age. In 1803 he was appointed assistant-surgeon at the *Hôtel-Dieu*; and he was appointed professor of operative surgery in succession to Sabbatier, in 1811. In 1815 he was appointed to the chair of clinical surgery, and three years later he became head surgeon at the *Hôtel-Dieu*. Many other offices were conferred upon him; he became inspector of the university, a chevalier and afterward an officer in the Legion of Honor, cheva-

lier of St. Michel, baron, member of the Institute, and first surgeon to the king. Dupuytren's energy and industry were alike remarkable. The most important of Dupuytren's writings is his *Treatise on Artificial Anus*, in which the principles laid down by John Hunter are happily applied. In his operations he was remarkable for the skill and dexterity with which he overcame the numerous difficulties incidental to so extensive a practice as he enjoyed. He had complete control over his feelings, and great readiness of resource. Instead of attempting to introduce new methods of procedure, he commonly limited himself to modifying and adapting to his particular exigencies the established laws of surgery. He was thus led to invent several new surgical instruments. In private life Dupuytren was cold and reserved; and this was perhaps increased by his constant struggle against a consumptive tendency, which ultimately carried him off February 8, 1835. In November, 1833, he had suffered a slight shock of apoplexy, but he continued in practice almost until the day of his death.

DUQUESNE, ABRAHAM, MARQUIS, one of the most distinguished naval officers in the history of France, was born at Dieppe, in 1610. Born in a stirring seaport, the son of a distinguished naval officer, he naturally adopted the profession of a sailor. He spent his youth in the merchant service, and obtained his first distinction in naval warfare by the capture of the island of Lerins from the Spaniards, in May 1637. About the same time his father was killed in an engagement with the Spaniards, and the news raised his hatred of the national enemy to the pitch of a personal and bitter animosity. For the next five years he sought every opportunity of inflicting defeat and humiliation on the Spanish navy, and he distinguished himself by his bravery in the engagement at Gattari (1638), the expedition to Coruña (1639), and in battle at Terragona, (1641), Barcelona (1643), and the Cape de Gata. The French navy being left unemployed during the minority of Louis XIV., Duquesne obtained leave to offer his services to the king of Sweden, who gave him a commission as vice-admiral in 1643. In this capacity he defeated the Danish fleet near Gottenburg and thus raised the siege of the city. The Danes returned to the struggle with increased forces under the command of King Christiern in person, but they were again defeated—their admiral being killed and his ship taken. Peace having been concluded between Sweden and Denmark in 1645, Duquesne returned to France. The revolt at Bordeaux, supported as it was by material aid from Spain, gave him the opportunity of at once serving his country and gratifying his long cherished hatred of the Spaniards. In 1650 he fitted out at his own expense a squadron with which he blockaded the mouth of the Gironde, and compelled the city to surrender. For this service he was promoted in rank, and received a gift of the castle and Isle of Indre, near Nantes. Peace with Spain was concluded in 1659, and for some years afterward Duquesne was occupied in endeavors to suppress piracy in the Mediterranean. On the revolt of Messina from Holland, he was sent to support the insurgents, and had to encounter the united fleets of Spain and Holland under the command of the celebrated Admiral De Ruyter. After several battles, in which the advantage was generally on the side of the French, a decisive engagement took place near Catania, on April 20, 1676, when the Dutch fleet was totally routed and De Ruyter mortally wounded. The greater part of the defeated fleet was afterward burned in the harbor of Palermo, where it had taken refuge, and the French thus secured the undisputed command of the Mediterranean. For this important service Duquesne received a letter of thanks from Louis XIV., together

with the title of marquis and the estate of Bouchet. Owing to his being a Protestant, however, his professional rank was not advanced. His last achievements were the bombardment of Algiers (1682-3), in order to effect the deliverance of the Christian captives, and the bombardment of Genoa, in 1684. On the revocation of the Edict of Nantes Duquesne lost his commission, but he was specially excepted from banishment. He died at Paris, February 2, 1688.

DURAN, AUGUSTIN (1785-1862), one of the leaders of the literary movement in Spain during the present century, was born at Madrid. In 1817 he joined the University of Seville for the study of philosophy and law, and in due course was admitted an advocate at Valladolid. In 1834 he received an appointment as secretary of the board for the censorship of the press, shortly afterwards supplemented by a post in the National Library at Madrid. The revolution of 1840 again led to his dismissal; but he recovered his position in 1843, and in 1854 attained the rank of director of the library. Next year, however, he retired, and the rest of his life was devoted to his literary work. He died in 1862.

DURANDUS, WILHELMUS (1237-1296), otherwise DURANTIS or DURANTI, was born at Puimisson, a small town in the diocese of Beziers, in Languedoc, whence he is sometimes described as a native of Provence. He studied law under Bernardus of Parma, in the University of Bologna, where he was promoted to the degree of doctor. He shortly afterward migrated to the University of Modena, where he became so famous by his lectures on the canon law that he attracted the notice of Pope Clement IV., who appointed him auditor of the palace, and subsequently subdeacon and chaplain. In 1274 he accompanied Pope Gregory X. as his secretary to the Council of Lyons, which is reckoned as the fourteenth general council, and under the pontificates of several subsequent Popes filled many highly responsible offices. He was appointed in 1277 spiritual and temporal legate of the patrimony of St. Peter, under Pope Nicholas III., and in 1278 took possession, in the name of the same Pope, of the provinces of Bologna and Romagna. In 1281 Pope Martin IV. named him vicar spiritual, and in 1283 governor of the temporalities of the two provinces, in which office he had the direction of the war against the rebellious province of Romagna. The town of Castrum Riparum Urbanatum having been burnt down during the war, he rebuilt it, and renamed it Castrum Durantis. Pope Urban VIII. subsequently gave to this town the name of Urbania, which it bears in the present day. Pope Honorius IV. retained Durandus in the same offices until the end of 1286, when his election to the bishopric of Meude, in Languedoc, was the occasion of his retiring for a short time from the conduct of civil affairs. Durandus, however, appears to have remained in Italy, and to have revised at this time several of his works. He refused in 1295 the archbishopric of Ravenna, which was offered to him by Pope Boniface VIII., and accepted in preference the more arduous office of governor of the province of Romagna and of the march of Ancona. The party of the Ghibellines, however, carried on hostilities against the Holy See with so much vigor that he found his strength unequal to the exigencies of government; and, having resigned his office, he retired to Rome, where he died on November 1, 1296.

Durandus was the author of several very learned works. The most famous of them is his *Speculum Judiciale*. It is a practical treatise on civil and canon law, and it earned for its author, when young, the surname of the Father of Practice.

DURANGO, a town of Spain, in the province of

Biscay, sixteen miles southeast of Bilbao, at the confluence of the Durango and the Mañaria. As a military position of some importance it is often mentioned in history.

DURANGO, sometimes called CIUDAD DE VICTORIA, or GUADIANA, a city of Mexico, the capital of the State of Durango, lies near the foot of the southeastern slope of the Sierra Madre, at the height of 6,847 feet above the sea.

DURANTE, FRANCESCO, a celebrated Italian composer, and one of the founders of the so-called Neapolitan school of music, was born at Frattagnoglio, in the Kingdom of Naples, and not, as has been erroneously stated, in the city of that name. The date of his birth is generally given nine years too late. In reality he was born on March 15, 1684. At an early age he entered the Conservatorio dei poveri di Gesù Cristo, at Naples, where he received lessons from Gaetano Greco; but soon he attracted the attention of the celebrated Alessandro Scarlatti, at that time the head and ornament of another great music school of Naples, the Conservatory of St. Onofrio. Under him Durante studied for a considerable time, and left him only to go to Rome, where, during further five years, he completed his vocal studies under Pitoni. On his return to Naples he obtained the position of chapel-master at the school of St. Onofrio, which he occupied till 1742, when he succeeded Porpora as head of the Conservatorio Sante Maria di Loreto, also at Naples. This post he held for thirteen years, till his death in 1755.

DURÃO, JOSE DE SANTA RITTA, a Brazilian poet, was born at Marianna, in the province of Minas Geraes, in 1737, and died at Lisbon in 1784.

DURAZZO, the ancient *Dyrrachium*, or *Epidamnus*, in Turkish Dratsh, and in Slavonian Durtz, a seaport town of European Turkey, in Albania, about fifty miles south of Scutari, on the eastern shore of the Adriatic.

DURBAN, or more correctly D'URBAN, a town of South Africa, in Natal, in the county of Durban, situated on a sandflat about a mile to the north of the bay of Port Natal.

DUREN, a town of Prussia, at the head of a circle in the province of the Rhine, on the right bank of the Roer, at a railway junction eighteen miles east of Aix-la-Chapelle.

DÜRER, ALBRECHT, was born at Nuremberg on May 21, 1471; he was therefore six years older than Titian and twelve years older than Raphael. In the history of art, Albert Dürer has a name equal to that of the greatest of the Italians. North of the Alps, his only peer was Holbein. But Holbein was not born till 1497, and lived after 1525 principally in England; hence in youth he came within the influence of the already matured arts of Italy, and in manhood his best powers were concentrated on the painting of portraits in a foreign country. Dürer lived a German among Germans, and is the true representative artist of that nation. All the qualities of his art—its combination of the wild and rugged with the homely and tender, its meditative depth, its enigmatic gloom, its sincerity and energy, its iron diligence and discipline—all these are qualities of the German spirit. And the hour at which Dürer arose to interpret that spirit in art was the most pregnant and critical in the whole history of his race. It was the hour of the Renaissance, of the transition between the Middle Ages and our own.

The genius of Albert Dürer cannot be rightly estimated without taking into account the position which the art of engraving held in the culture of his time. He was, indeed, first of all a painter; and though in his

methods he was too scrupulous and laborious to produce many great works, and though one of his greatest, *The Assumption of the Virgin*, has been destroyed by fire, and another, the *Feast of Rose-Garlands*, has suffered irreparably between injury and repair, yet the paintings which remain by his hand are sufficient to place him among the great masters of the world. He has every gift in art except the Greek and the Italian gift of beauty or ideal grace. In religious painting, he has profound earnestness and humanity, and an inexhaustible dramatic invention; and the accessory landscape and scenery of his compositions are more richly conceived and better studied than by any painter before him. In portrait, he is equally master of the soul and body, rendering every detail of the human superficies with a microscopic exactness, which nevertheless does not encumber or overlay the essential and inner character of the person represented. Still more, if we judge him by his drawings and studies, of which a vast number are preserved in private as well as public collections, shall we realize his power in grasping and delineating natural fact and character, the combined gravity and minuteness of his style, the penetration of his eye, and the almost superhuman patience and accuracy of his line in drawing, whether from persons, animals, plants, or landscape, whether with pen, pencil, charcoal, or (which was his favorite method) in color with the point of the brush. But neither his paintings nor his drawings could by themselves have won for him the immense popular fame and authority which have been his from his own time to ours; that fame and that authority are due to his pre-eminence in the most popular and democratic of the arts, that of which the works are accessible to the largest number, the art of engraving. In an age which drew a large part of its intellectual nourishment from engravings, Dürer furnished the most masterly examples both of the refined and elaborate art of the metal engraver, as well as the most striking inventions for the robust and simple art of the wood engraver.

The life into which Albert Dürer was born was a grave, a devout, a law-loving, and a lettered life, in the midst of a community devoted to honorable commerce and honorable civic activities, proud of its past, proud of its wealth, proud of its liberties, proud of its arts and ingenuities, and abounding in aspects of quaint and picturesque dignity. Albrecht Dürer, the elder, was a goldsmith by trade, and settled soon after the middle of the fifteenth century in Nuremberg. He served as assistant under a master goldsmith of the city, Hieronymus Holper, and presently married his master's daughter, Barbara. They had eighteen children, of whom Albert was the second. The elder Dürer was an esteemed craftsman and citizen, sometimes, it seems, straitened by the claims of his immense family, but living in virtue and honor to the end of his days. The young Albert was his father's favorite son. "My father," these are his own words, "took special delight in me. Seeing that I was industrious in working and learning, he put me to school; and when I had learned to read and write, he took me home from school and taught me the goldsmith's trade." By-and-by the boy found himself drawn by preference from goldsmith's work to painting; and after some hesitation, his father at first opposing his wishes on the ground of the time already spent in learning the former trade, he was at the age of fifteen and a half apprenticed for three years to the principal painter of the town, Michael Wohlgemuth. Wohlgemuth furnishes a complete type of the German painter of that age. At the head of a large shop with numerous assistants, his business was to turn out, generally for a small price, devotional pieces commissioned by mercantile corporations or private persons to decor-

ate their chapels in the churches—the preference being usually for scenes of our Lord's Passion, or for tortures and martyrdoms of the saints. In work of this class, the painters of Upper Germany before the Renaissance show considerable technical knowledge, and a love of rich and quaint costumes and of landscape, but in the human part of their representations often a grim and debased exaggeration, transgressing all bounds in the grotesqueness of undesigned caricature. Wohlgemuth and his assistants also produced woodcuts for book illustration, and probably—though this is a vexed question—engravings on copper. In this school Dürer learned much, by his own account, but suffered also not a little from the roughness of his companions. At the end of his term under Wohlgemuth, he entered upon the usual course of travels—the *Wanderjahre*—of a German youth. We also hear of him at Strasburg. It is a moot point among biographers whether toward the end of his *Wanderjahre*—about the year 1494—the young Dürer did or did not cross the Alps to Venice.

At the end of May, 1494, being twenty-three years old, Albert Dürer returned, at his father's summons, to his native Nuremberg, and within two months was married to Agnes, the daughter of a well-to-do merchant of the town named Hans Frey. It is probable that the marriage had been arranged between Hans Frey and the elder Dürer while Albert was on his travels; and possible that a portrait of the young painter very richly habited, executed by himself in the previous year 1493, and showing himself in the first bloom of that admirable manly beauty for which he was afterward renowned, may have been destined to recommend him to the good graces of the lady.

For more than eleven years after his marriage, Dürer lived at Nuremberg the settled and industrious life of his profession. Within this period his masterly powers unfolded and matured themselves. Two important devotional pictures are attributed to his early practice; one a large triptych painted in tempera on linen, now in the gallery at Dresden, the other also an altar-piece with wings, now in the summer palace of the archbishop of Vienna, at Ober St. Veit; both probably painted for the Elector Frederick of Saxony. A finer, and somewhat later, example of the master's work in this class is the altar-piece painted for the family of Baumgartner, having a Birth of Christ in the center, and the figure of a knight on either side; this is now at Munich. The best of Dürer's energies, both of mind and hand, was given in those days to the preparation of his sixteen great woodcut designs for the Apocalypse. The first edition illustrated with this series appeared in 1498. The Northern mind had long dwelt with eagerness on these mysteries of things to come, and among the earliest block-books printed in Germany is an edition of the Apocalypse with rude figures. But Dürer not only transcends all efforts made before him in the representation of these thaumaturgic visions of doom and redemption; the passionate energy and undismayed simplicity of his imagination enable him, in this order of creations, to touch the highest point of human achievement. The four angels keeping back the winds that they blow not; the four riders: the loosing of the angels of the Euphrates to slay the third part of men; these and others are conceptions of such force, such grave or tempestuous grandeur in the midst of grotesqueness, as the art of no other age or hand has produced. At the same time, Dürer was practicing diligently the laborious art of copper engraving. In the years immediately about or preceding 1500, he produced a number of plates of which the subjects are generally fanciful and allegorical, and the execution is more or less tentative and uncertain.

From the half-Venetian, half-German Jacopo de' Barbari, Dürer learned much. The Italians had already begun to work out a science of the human structure and of ideal proportions; and from Jacopo de' Barbari, as Dürer himself tells us, he received in youth the first hints of this science; which he subsequently investigated for himself with his usual persistent industry. These early notions received from Jacopo de' Barbari led to one immediate result of value, the famous engraving of Adam and Eve published in 1504. The figures here, as we can see by many preparatory sketches, are planned on geometrical principles, not drawn—as was the common German custom, and Dürer's own in a large majority of his works—direct from the model, with all the crudities of the original faithfully delineated. The background of foliage and animals is a miracle of rich invention and faithful and brilliant execution; the full powers of Dürer as an engraver on copper are here for the first time asserted. In another elaborate engraving which probably soon followed this—the Great Fortune of Nemesis—the opposite principle is observed; above a mountain valley, of which every detail is rendered in bird's eye view with amazing completeness, an allegorical figure of a woman rides upright upon the clouds, bearing a cup in one hand and a bridle in the other; in her countenance and proportions there is nothing ideal, there is the most literal and graceless commonness. In his own journals Dürer calls this plate *Nemesis*; it has been conjectured that the piece was composed in allusion to the unfortunate expedition sent by the Emperor Maximilian to Switzerland, in which a number of Nuremberg citizens took part, with Pirckheimer at their head. In the meantime Dürer had been variously exercising his inexhaustible power of dramatic invention on the subjects of Christian story. He had completed the set of drawings of the Passion of Christ, in white on a green ground, which is known as the Green Passion, and forms one of the treasures of the Albertina at Vienna. He had followed up his great woodcut series of the Apocalypse with preparations for other series on a similar scale, and had finished seven out of twelve subjects for the set known as the Great Passion, and sixteen out of twenty for the Life of the Virgin, when his work was interrupted by a journey which is one of the principal episodes in his life. In the autumn of the year 1505 he went to Venice, and stayed there until the autumn of the following year.

Amongst other causes for the journey of which we have explicit record, were an outbreak of sickness at Nuremberg; Dürer's desire, which, in fact, was realized, of finding a good market for the proceeds of his art; and the prospect, also realized, of a commission for an important picture from the German community settled at Venice, who had lately caused an exchange and warehouse—the *Fondaco de' Tedeschi*—to be built on the Grand Canal, and who were now desirous to dedicate a picture in the Church of St. Bartholomew. The picture painted by Dürer on this commission was the Adoration of the Virgin, better known as the Feast of Rose-Garlands; it was subsequently acquired by the Emperor Rudolf II., and carried as a thing beyond price upon men's shoulders to Vienna; it now exists in a greatly injured state in the monastery of Strachow, near Prague. It is one of Dürer's best conceived and most multitudinous compositions, and one in which he aims at rivaling the richness and playfulness of Italian art. Other pictures, probably painted by him at Venice, are *Christ Disputing with the Doctors*, now in the Palazzo Barberini at Rome; *Christ Crucified*, in the gallery at Dresden, and a *Madonna and Child* in the possession of Lord Lothian.

From the winter of 1506 until the summer of 1520,

Dürer was again a settled resident in his native town. During these years his genius and his fortunes were at their height. Except the dazzling existence of Raphael at Rome, the annals of art present the spectacle of no more honorable or more enviable career. Dürer's fame had spread all over Europe. From Antwerp to Rome his greatness was acknowledged, and artists of less invention, among them some of the foremost on both sides of the Alps, were not ashamed to borrow from his work this or that striking combination or expressive type. He was on terms of friendship or friendly communication with all the first masters of the age, and Raphael held himself honored in exchanging drawings with Dürer. In his own country, all orders of men, from the Emperor Maximilian down, delighted to honor him; he was the familiar companion of chosen spirits among statesmen, humanists, and reformers, and had the power to bind to himself with the links of a more than brotherly friendship the leading citizen of the leading city of Germany, Willibald Pirckheimer. His temper and his life were singularly free from all that was jarring, jealous, or fretful. The burgher life of even this, the noblest German city, seems narrow, quaint, and harsh beside the grace and opulence and poetry of Italian life in the same and the preceding generation; but among its native surroundings, the career of Dürer stands out with an aspect of ideal elevation and decorum which is its own. He is even distinguished from his fellow citizens by the stately beauty of his aspect and the rich elegance of his attire. Every reader will be familiar with the portrait in which he has represented himself at this middle period of life—the nobly-formed oval countenance, with the short beard, and the long carefully-divided locks curled and flowing over either shoulder, the upright brow, the steadfast penetrating gaze, of the large, perfectly-cut eyes, the long nose, somewhat aquiline, and full, perfectly-cloven mouth, the strong delicate fingers playing with the rich fur lapet of his cloak.

These years of Dürer's life can best be divided according to the several classes of work with which, during their succession, he was principally occupied. During and after his residence at Venice, he had come to disuse the traditional German practice of painting with the help of a whole school of assistants and apprentices. The first six years after his return, from 1506 to 1512, are preëminently the painting years of his life; in them, working with infinite preliminary pains, and, as it seems, almost entirely with his own hands, he produced what are accounted his four capital works—the *Adam and Eve*, painted in 1507; of this it has been disputed whether a version at Madrid or one in the Pitti Palace at Florence is the original; the *Ten Thousand Martyrs of Nicomedia*, painted for the Elector Frederick of Saxony in 1508 and now in the imperial gallery at Vienna; a rich altar-piece representing the *Assumption of the Virgin*, with portraits of the donor and his wife and other accessory subjects, executed for Jacob Heller, a merchant of Frankfort, in 1509—this was afterward replaced, at Frankfort, by a copy, and the original transported to Munich, where it perished by fire in 1674; and lastly, the *Adoration of the Trinity by all the Saints*, a composition of many figures commissioned for a chapel dedicated to All Saints in an almshouse for decayed tradesmen at Nuremberg, and completed in 1511—this is now one of the glories of the Belvedere at Vienna. In this same year, 1511, Dürer brought out his three great woodcut books in folio form together—the *Apocalypse*, in a second edition, the *Great Passion*, and the *Life of the Virgin*, for the first time complete. In 1512, he painted two pictures for his native town, the historical portraits of Charlemagne and the Emperor Sigismund,

which are now to be seen in the Germanic Museum of Nuremberg. The two or three years next following this are for Dürer years, above all things, of engraving on metal. Of the sixteen pieces composing the Little Passion on Copper, perhaps the best invented and certainly the most brilliantly executed of all his gospel histories, ten were executed in 1512 and the last six in 1513. And these, again, are the years of those three masterpieces of his mind and hand, the *Melancholia*, the *Knight with Death and the Devil*, and the *St. Jerome Reading in his Cell*. These engravings are too well known to need description. The first two, by their earnest and enigmatic significance, have fascinated minds of every class, and given rise to an infinity of discussion. It is nearly certain that in these three plates, of almost the same size, date, and manner, and of equal technical perfection, we have three out of four projected illustrations of the Human Temperaments, as they were divided by mediæval science—the Melancholic, the Sanguine, the Phlegmatic, and the Choleric.

The five years between 1514 and 1519 are devoted above all things to woodcut work, on commission from the Emperor Maximilian, who had resided for some time at Nuremberg in 1512, and whose personal favor and friendship Dürer from that time enjoyed. With the learned coöperation of Johannes Stabius, he presently commenced a scheme of design for wood engraving in honor of Maximilian more vast and laborious than either Burgkmair's schemes of illustration to the *Heisskunig* or Schäuëlein's to the *Theuerdank*. This is the prodigious work known as the Gate of Honor; on it, and on the Car of Honor, and on portions of the Triumphal Procession, all of which belonged to the same great scheme (other portions of the Procession being the work of Burgkmair) Dürer was chiefly engaged for four or five years. One of the most delightful memorials of his activity in the service of the emperor is the famous *Prayer-Book of Maximilian*, a volume decorated by Dürer's hand with marginal arabesques of an inexhaustibly quaint and various invention; this is now preserved at Munich, and is known by more than one modern edition published in fac-simile. His few paintings remaining from this period show a manifest falling off in labor and completeness from those of the period just preceding. In 1518 the Diet of Augsburg brought Maximilian to that city, and there Dürer was in attendance on him. A noble portrait drawn in charcoal, and subsequently used for an engraving in wood, carries a note in the artist's handwriting to the effect that it was done from the emperor at Augsburg "in his little room up at the top of the palace."

In 1519 Maximilian died. In the next year the desire of Dürer to secure from his successor a continuance of the patronage and privileges granted during his lifetime, together with an outbreak of sickness in Nuremberg, gave occasion to the master's third and last journey from his home. On July 12, 1520, he set out for the Netherlands, with his wife and her maid, in order to be present at the coronation of the young Emperor Charles V., and if possible to conciliate the good graces of the all-powerful regent Margaret. In the latter part of his aim Dürer was but partially successful. His diary of his travels enables us to follow his movements almost day by day. He traveled by the Rhine to Cologne, and thence by road to Antwerp, where he was splendidly received and lived in whatever society was most distinguished, including that of Erasmus of Rotterdam. Many portrait drawings of persons who sat to him in these days are preserved. Besides going to Aachen for the coronation, he made excursions down the Rhine, from Cologne to Nimeguen, and back overland by Herzogenbusch; to Brussels; to Bruges and Ghent; and

to Zealand with the object of seeing a natural curiosity, a whale reported ashore. The vivid account of this last expedition given in his diary, contrasts with the usual dry entries of his interviews and disbursements. A still more striking contrast is the passionate outburst of sympathy and indignation with which, in the same diary, he comments on the supposed kidnapping of Luther by foul play on his return from the Diet of Worms. Without being one of those who in his city took an avowed part against the old ecclesiastical system, and probably without seeing clearly whither the religious ferment of the time was tending—without, that is, being properly speaking a Reformer—Dürer in his art and all his thoughts was the incarnation of those qualities of the Teutonic character and the Teutonic conscience which resulted in the Reformation; and personally, with the fathers of the Reformation he lived in the warmest sympathy.

On July 12, 1521, Dürer reached home again. The remaining seven years of his life were occupied chiefly with the preparation of the scientific writings of which we have already spoken; with engraving on copper, in a style of consummate care and power, several portraits of his friends, among them the Elector Frederick Pirkheimer, Erasmus, and Melancthon; and with the execution of those two paintings by which, perhaps, his powers in this highest branch of his art are best known, the figures of St. Paul with St. Mark, and St. John with Peter. These are now in the Munich Gallery, and exhibit at their greatest Dürer's earnest and pregnant conception of character, with a majesty in the types and a grandeur in the gesture and drapery which in his earlier career he had never yet attained. Each apostle or evangelist represents a "temperament,"—John the melancholic, Peter the phlegmatic, Paul the sanguine, and Mark the choleric; and it is characteristic of Dürer's thought that Peter is put in the background, studying off a book held open by John, the favorite evangelist of the Reformation, and of Luther; in this representation of John some have recognized the features of Melancthon; its likeness to the poet Schiller is a coincidence much more obvious. These various classes of work were carried on in the face of failing health. In the canals of the Low Countries Dürer had caught a fever, of which he never shook off the effects. The evidence of this we have in his own written words, as well as in a sketch which he drew to indicate, to some doctor with whom he was in correspondence, the seat of his suffering; and again, in the record of his physical aspect—the shoulders already somewhat bent, the features somewhat gaunt, the old pride of the abundant locks shorn away—which is preserved in a portrait engraved on wood just after his death, from a drawing made, no doubt, not long previously. That death came suddenly—so suddenly that there was no time to call his dearest friends to his bedside, on the night of April 6, 1528. Dürer was buried in the vault belonging to his wife's family, but since disturbed, in the burying-ground of St. John at Nuremberg. He left a name that will be honored by the latest posterity, and a place that nothing could fill in the affections of his noblest contemporaries.

D'URFEY, THOMAS, more generally known by the familiar name of Tom d'Urfey, an English satirist and song writer, was descended from a family of French Huguenot refugees, and was born at Exeter. The year of his birth is unknown. His dramatic pieces, numbering upward of thirty, were well received, but were so licentious that none of them kept the stage after the dissolute period for which they were written. D'Urfey, by imprudence and extravagance, became poor as he grew old; and having prevailed on the managers of the playhouse to act his comedy of the *Plotting Sisters* for

his benefit, Addison wrote a paper in the *Guardian*, together with another, giving a humorous account of his eccentricities, in order to procure him a full house. He died at an advanced age in 1723.

DURIAM, COUNTY PALATINE OF, one of the northern shires of England. The county is triangular in form, its eastern limit or base being a coast-line exposed to the German Ocean. It is separated from Northumberland chiefly by the Tyne and its tributary the Derwent, and from Yorkshire by the Tees. Toward its western extremity it joins Cumberland and Westmoreland. Its greatest length is forty-five miles, and its greatest breadth thirty-six miles; and it contains an area of 1,012 square miles, or 647,592 acres. It is divided into four wards—Chester and Easington in the north, and Darlington and Stockton in the south. There were formerly three outlying portions of the county, shown in old maps, and known as North Durham (including Northamshire and Islandshire), Bedlingtonshire, and Crayke.

DURIAM CITY, a municipal and parliamentary borough of England, and the chief town of the county of Durham, is situated on the River Wear (which is crossed there by four bridges), fourteen miles south of Newcastle and sixty miles north-northwest of York.

DURHAM, the county seat of Durham County, N. C., a tobacco manufacturing town of 5,000 people, with railroad and telegraph facilities.

DURIAN, the fruit of *Durio zibethinus*, a tree of the natural order *Sterculiaceæ*, which attains a height of seventy or eighty feet, has oblong, tapering leaves, rounded at the base, and yellowish-green flowers, and bears a general resemblance to the elm. The durio is cultivated in Sumatra, Java, Celebes, and the Moluccas, and northward as far as Mindanao, in the Philippines; also in the Malay Peninsula, in Tenasserim, on the Bay of Bengal, to 14° north lat., and in Siam to the 13th and 14th parallels.

DÜRKHEIM, a town in the Palatinate of the Rhine, near the foot of the Hardt Mountain, and at the entrance of the valley of the Isenach, fifteen miles northwest of Spire, on the railway between Monsheim and Neustadt.

DURLACH, a town of Bavaria, in the circle of Carlsruhe, two and one-half miles by rail from the city of that name, with which it is connected by a canal and an avenue of poplars.

DURRA, or INDIAN MILLET, *Sorghum vulgare*, is a species of grass of the tribe *Andropogoneæ*. The terms *durra* and *zurru* are applied to the plant in Arabia; in India it is known as *jawari* (Hindustani), *jowari* (Bengali), *cholum* (Tamil), and *jonna* (Telugu), and in the West Indies as Negro or Guinea Corn. It is a strong grass, growing to a height of from four to eight or even sixteen feet; the leaves are sheathy, solitary, and about two inches broad and two and one-half feet in length; the panicles are contracted, dense, and hermaphrodite; and the seeds, which are inclosed in husks, and protected by awns, are round, hard, smooth, shining, brownish-red, and somewhat larger than mustard seeds. The plant is cultivated in various parts of India and other countries of Asia, in the United States, and in the south of Europe. Its culms and leaves afford excellent fodder for cattle; and the grain, of which the yield in favorable situations is upward of a hundredfold, is used for the same purposes as maize, rice, corn, and other cereals.

DUSSEK, JOHANN LUDWIG, pianist and composer, was born at Czeslau, in Bohemia, on February 9, 1761. In 1779 he was for a short time organist in the church of St. Rombaut, at Mechlin. At the close of this engagement he proceeded to Holland, where he attained

great distinction as a pianist, and was employed by the stadtholder as musical instructor to his family. While at The Hague he published his first works in the form of several sonatas and concertos for the piano. He had already composed at the age of thirteen a solemn mass and several small oratorios, which still exist in manuscript. In 1783 he visited Hamburg, and placed himself under the instruction of Emmanuel Bach. Though he believed himself to have derived great benefit from this, it may be questioned whether his genius was not fettered rather than stimulated by the enthusiastic veneration with which he regarded his model. From Hamburg he proceeded to Berlin, where his powers as a pianist met with their accustomed recognition. After spending two years in Lithuania in the service of Prince Radziwill, he went in 1786 to Paris, where he remained, with the exception of a short period spent at Milan, until the outbreak of the Revolution, enjoying the special patronage of Marie Antoinette and great popularity with the public. Toward the close of 1789 he removed to London, where three years later he married a daughter of Dominico Corri, who was herself a clever harpist and pianist. In London he obtained his greatest success alike as composer, performer, and teacher. Unfortunately, however, he was tempted by the larger sale of his numerous compositions to open a music-publishing warehouse in partnership with Montague Corri, a relative of his wife. The result was injurious to his fame and disastrous to his fortune. Writing solely for the sake of sale, he composed many pieces that were quite unworthy of his genius; and, as he was entirely destitute of business capacity, bankruptcy was inevitable. In 1800 he was obliged to flee to Hamburg to escape the claims of his creditors. Some years later he was attached in the capacity of musician to the household of Prince Louis Ferdinand of Prussia, with whom he formed an intimate friendship. On the death of his patron, in 1806, he passed into the service of Prince Ysenburg as court musician. In 1809 he went to Paris to fill a similar situation in the household of Prince Talleyrand, which he held until his death in March, 1812.

DÜSSELDORF, a town of Prussia, at the head of a government in the province of the Rhine, on the right bank of the river, twenty-five miles below Cologne. It is divided into four portions—the Old Town, the Karstadt, which dates from 1787, and is called after the electoral Prince Charles Theodore, the New Town, which was in process of formation from 1690 to 1716, and the Friedrichsstadt, laid out within recent years. New streets are rapidly stretching out in all directions, and the villages of Pempelfort, Bilk, and Derefdorf, are already almost incorporated.

Besides the old ducal palace, laid in ruins by the French in 1794, but restored in 1846, the secular buildings comprise the former Jesuit college, now occupied by the administrative offices, a town-house, dating from 1567, a penitentiary, a lunatic asylum, several hospitals and infirmaries, a theater completed in 1875, a music hall, a gymnasium, and a polytechnical school. The town also possesses a library of 50,000 volumes, and is the seat of a great number of commercial and intellectual associations; but to nothing is it more indebted for its celebrity than to the Academy of Painting. This famous institution, originally founded by the electoral Prince Charles Theodore in 1767, was reorganized by King Frederick William in 1822, and has since attained a high degree of prosperity as a center of artistic culture. From 1822 till 1826, it was under the direction of Cornelius, a native of the town, from 1826 to 1859 under Schadow, and from 1859 to 1884 under Bendemann. From Bendemann's resignation it continued in the hands of a

body of curators till 1873, when Wiscelinus of Weimar was chosen director. The noble collection of paintings which formerly adorned the Düsseldorf Gallery, was removed to Munich in 1805, and has not since been restored; but there is no lack of artistic treasures in the town. Not only is Düsseldorf situated in the greatest manufacturing province of Prussia, but it is itself the seat of various important industries—cotton and carpet weaving, iron-founding, wire-drawing, sugar-refining, brewing, distillation, and the making of pianos and carriages. The surrounding country is largely devoted to market-gardening, and the Düsseldorf mustard is in special repute. A very extensive trade is carried on both by river and by rail; the port was declared free in 1829, and is, consequently, one of the most frequented on the Rhine.

DUTENS, LOUIS (1730–1812), a French writer of some celebrity, was born at Tours.

DUTROCHET, RENÉ JOACHIM HENRI, a French physiologist and natural philosopher, was born at Château de Néon, Poitou, November 14, 1776, and died at Paris, February 4, 1847. The number of his scientific publications, which relate to a great variety of topics, is very great.

DUVAL, JULES (1813–1870), a French economist, was born at Rodez, in the department of Aveyron, received his early education at the college of St. Geniez d'Olt, passed as advocate at the age of twenty-three, and for eight years held an official position, first at St. Affrique and afterward in his native town. On the pacification of Algeria he took an active part in the foundation of the Union Agricole d'Afrique; and in 1847 he established an agricultural colony in the plain of Siz. Obligated by ill health to abandon in 1850 the personal charge of the enterprise, he did not leave the country, but in 1852 became editor of the *Echo d'Oran*, and from 1858 to 1861 acted as member and secretary of the general council of the province of Oran. Removing to Paris in the latter year, he there

devoted himself to the literary exposition of his views; among numerous other enterprises founded and edited till his death the *Économiste Français*, a weekly periodical devoted to the treatment of all matters connected with colonization and social reform, which bore his favorite device of *libre et harmonique essor des forces*. He was killed at Plessis-lès-Tours in a railway accident on September 20, 1870, while on his way to his native town.

DUVERGIER DE HAURANNE, JEAN, abbé of St. Cyran, a celebrated French theologian, was born at Bayonne in 1581. He studied theology at the university of Louvain, where he formed an intimate friendship with Jansen, who was his fellow student. After quitting Louvain he went to Paris, where his intimacy with Jansen continues, and with him he pursued with great ardor the study of the Fathers. Leaving Paris in 1611, they continued the same studies at Bayonne, where Duvergier received the canonry of the cathedral. When Jansen left Bayonne, Duvergier returned again to Paris, and shortly after his arrival there his inflexible and ascetic character secured for him the esteem of the Bishop of Poitiers, who gave him a canonry, and in 1620 made him abbé of St. Cyran. He established in the monastery the order of St. Benoît in all its rigor; but his zeal for reform was so great that he awakened opposition, and he found it expedient to quit his diocese and return to Paris. Here he formed a connection with the influential Arnauld family, and along with Angelique Arnauld, directress of the convent of Port Royal, he completely reformed that institution. His rigorous asceticism acquiring for him great ascendancy over feminine minds, his fame and influence increased

with great rapidity, and he soon began to number among his disciples members of the highest classes of society, and to have as his personal friends some of the chief dignitaries of church and state. Soon, however, his enemies came to be as numerous as his friends. His rigid and domineering disposition began to alienate from him many of his disciples; and, taking a leading part in the Jansenist controversy, he excited against himself the peculiar animosity of the Jesuits. At last his views came to be suspected by Richelieu, and he was arrested and thrown into prison at Vincennes, March 14, 1638. No evidence could be obtained from his papers sufficient to criminate him, but to limit his influence he was retained in durance at Vincennes—where, however, he was able to keep up intercourse with his penitents and disciples. On the death of Richelieu he regained his liberty, and resumed his religious duties and his war with the Jesuits with the same energy as before; but he enjoyed only six months of freedom, dying from a stroke of apoplexy, October 10, 1643.

DWĀRAKĀ, DWARKA, or JIGAT, a town of British India, in Guzerat, near the extremity of the peninsula of Kattywar.

DWARF, a term applied to men, animals, and plants that fail to reach even the mediocrity of growth natural to their respective classes. It is also otherwise applied. In France, for instance, a yolkless egg is termed "un œuf nain," or dwarf egg; and an imitation of fine English cloth is called "nain Londrin," technically "London dwarf."

The *nanus* or *pumilo* of the Romans might be a dwarf by nature or a person dwarfed by cruel art. In the former case, his lack of height found compensation in increased strength; in the latter, where growth had been early suppressed by the dealers who manufactured monstrosities for fashionable people in Rome, weakness bred contempt. The *nanus*, or, if he were more than usually diminutive, the *nanium*, was exposed to application of the proverb, "little people must not be in our way!"

Various have been the recipes for dwarfing children from birth. The most effective, according to report, was anointing the backbone with the grease of moles, bats, and dormice. It is also said that pups were dwarfed by frequently washing their feet and backbone; the consequent drying and hardening of these parts hindered, it was alleged, their extension. In England the growth of boys intended for riders in horse-races is kept down to some extent by the weakening process of "sweating."

DWIGHT, TIMOTHY, an eminent American divine, was born at Northampton, Massachusetts, May 14, 1752. His father, though educated at Yale College, was a merchant, and his mother the third daughter of Jonathan Edwards. His mother began to instruct him almost as soon as he was able to speak, and it is said that he learned the alphabet at a single lesson, and before he was four years old he was able to read the Bible. In 1765 he entered Yale College, and received his B.A. degree in 1769, shortly after which he went to take charge of a grammar school at Newhaven, where he remained two years. In September, 1771, he was appointed tutor in Yale College, where he distinguished himself by the skill with which he taught the higher mathematics. In the same year he began an epic poem entitled *Conquest of Canaan*, which was published in 1785. He received his degree of M.A. in 1772, and afterward pursued his studies with the view of adopting law as his profession, but, changing his intention, was licensed as a preacher of the gospel in 1777, and accepted the office of chaplain to the forces, which post he held for some time. In 1783 he was ordained minister

of Greenfield in Connecticut, when he opened an academy, which speedily acquired a very high reputation, and attracted scholars from all parts of the Union. He received the degree of D.D. from Princeton College in 1785, and that of LL.D. from New Jersey in 1810. In 1795 he was elected President of Yale College, and by his judicious management restored that institution to the high place from which it had fallen before his appointment. He died at Philadelphia on January 11, 1817.

DWINA, a name common to two important rivers of European Russia.

I. The NORTHERN DWINA, or *Dvina Sievernaya*, belongs to the basin of the White Sea, and is formed by the junction of the Sukhoma and the Yuk, which rising the former in the southeast and the latter in the southwest of the government of Vologda, meet in the neighborhood of Veliki Ustyug, at a height of 300 feet above the sea. From its mouth, in the Gulf of Archangel, the distance to the confluence of the co-tributary streams is about 400 miles, and to the source of the Sukhoma 750 miles. The drainage area is estimated at from 140,000 to 145,000 square miles. The river affords a valuable means of inland navigation. From Vologda to Archangel the ordinary passage requires from ten to twelve days, and the return journey from six to eight weeks. The channel is free from ice for about 174 days in the year.

II. The SOUTHERN DWINA, or *Dvina Zapadnaya*, in German *Düna*, belongs to the Baltic basin, and takes its rise in a small lake about 800 feet above the level of the sea, in the government of Tver, not far from the sources of the Volga and the Dnieper. In its whole course of about 600 miles it waters the seven governments of Tver, Pskoff, Vitebsk, Mogileff, Vilna, Curland and Livonia; and it is calculated that it drains an area of about 65,000 square miles.

DYCE, ALEXANDER, a distinguished dramatic editor and literary historian, was born at Edinburgh, on June 30, 1798, and, after receiving his early education at the High School of his native city, became a student at Exeter College, Oxford, where he graduated as B.A. Having adopted the clerical profession, he officiated as curate at Langtoss, in Cornwall, and subsequently at Nayland, in Suffolk; and, in 1827, he settled in London. His first books were *Select Translations from Quintus Smyrnaeus*, an edition of Collins, and *Specimens of British Portesses*. He issued annotated editions of George Peele, Robert Greene, John Webster, Thomas Middleton, and Beaumont and Fletcher, with lives of the authors and much illustrative matter. He completed an edition of Shirley left unfinished by Gifford, and contributed biographies of Shakespeare, Pope, Akenside, and Beattie to Pickering's *Aldine Poets*. He has also edited several of Bentley's works, and *Specimens of British Sonnets*; and his carefully revised edition of John Skelton, which appeared in 1843, did much to revive interest in that trenchant satirist. In 1857 his edition of Shakespeare was published by Moxon; and the second edition, a great improvement on the old one, was issued by Chapman and Hall in 1866. Dyce's interest in Shakespeare manifested itself further in such works as *Remarks on Collier's and Knight's Editions of Shakespeare*, *A Few Notes on Shakespeare*, and *Strictures on Collier's New Edition of Shakespeare*. He was intimately connected with several literary societies, and undertook the publication of Kempe's *Nine Days' Wonder* for the Camden Society; and the old plays of *Timon* and *Sir Thomas More* were published by him for the Shakespeare Society. He was associated with Halliwell, Collier and Wright as one of the founders of the Percy Society, which aims at publishing old English

etry. Dyce also issued *Recollections of the Table-Talk of Samuel Rogers*, which has been several times reprinted both in Britain and in the United States. The editions of the dramatists already mentioned were reissued with many improvements. Dyce died on May 15, 1869.

DYCE, WILLIAM, (1806-1864), a distinguished painter, was born in Aberdeen, where his father, a fellow of the Royal Society, was a physician of some repute. He attended Marischal College, took the degree of M.A. at sixteen years of age, and was destined for one of the learned professions. Showing a turn for design instead, he studied in the school of the Royal Scottish Academy in Edinburgh, then as a probationer (not a full student) in the Royal Academy of London, and thence, in 1825, proceeded to Rome, where he spent nine months. He returned to Aberdeen in 1826, and painted several pictures; one of these, *Bacchus nursed by the Nymphs of Nysa*, was exhibited in 1827. In the autumn of that year he went back to Italy, showing from the first a strong sympathy with the earlier masters of the Florentine and allied schools. A *Virgin and Child*, which he painted in Rome in 1828 was much-noticed by Overbeck and other foreign artists. In 1829 Dyce settled in Edinburgh, taking at once a good rank in his profession, and showing considerable versatility in subject-matter. Portrait-painting for some years occupied much of his time, and he was particularly prized for likenesses of ladies and children. In February, 1837, he was appointed master of the School of Design of the Board of Manufactures, Edinburgh. In the same year he published a pamphlet on the management of schools of this description, which led to his transfer from Edinburgh, after eighteen months' service there, to London, as superintendent and secretary of the then recently established school of design at Somerset House. Mr. J. R. Herbert was head master about the same time. Dyce was sent by the Board of Trade to the continent to examine the organization of foreign schools, and a report which he eventually printed, 1840, led to a remodeling of the London establishment. In 1842 he was made a member of the council and inspector of provincial schools, a post which he resigned in 1844. In this latter year, being appointed professor of fine art in King's College, London, he delivered a noticeable lecture, *The Theory of the Fine Arts*. In 1835 he had been elected an associate of the Royal Scottish Academy; this honor he relinquished upon settling in London, and he was then made an honorary R.S.A. In 1844 he became an associate, in 1848 a full member, of the London Royal Academy; he also was elected a member of the Academy of Arts in Philadelphia. He was active in the deliberations of the Royal Academy, and it is said that his tongue was the dread of the urbane president, Sir Charles Eastlake, for Dyce was keen in speech as in visage; it was on his proposal that the class of retired Academicians was established. In January, 1850, Dyce married Jane, daughter of a Mr. James Brand, of Bedford Hill, Surrey. He died of a cancerous disease in his house at Streatham, on February 14, 1864, leaving two sons and two daughters.

DYEING is the art of coloring in a permanent manner porous or absorbent substances by impregnating them with coloring bodies. Most vegetable and animal bodies are porous or absorbent, and can be dyed; some minerals also, such as marble, can absorb liquid coloring matters, but the term dyeing is usually confined to the coloring of textile fibrous materials by penetration. The superficial application of pigments to tissues by means of adhesive vehicles, such as oil or albumen, as in painting or in some kinds of calico-printing, is not considered as a case of dyeing, because the coloring bodies

so applied do not penetrate the fiber, and are not intimately incorporated with it. The mere saturation of textile fiber with a solution of some colored body and subsequent drying do not constitute a case of dyeing, unless the color becomes in so far permanently attached to the fiber that it cannot be washed out again by the solvent employed or by common water.

That dyeing was practiced in the most ancient times is abundantly proved by the frequent mention of dyed colors in the oldest extant writings; that it was not a common art seems apparent from the uses to which colored garments were devoted, and the distinction which they conferred upon the wearers. It is probable that such definite and bright colors as the "blue, and purple, and scarlet" mentioned several times in the Book of Exodus, as well as the Tyrian purple so often referred to by Roman writers of the Augustan age, were so costly as not to be available for general and common use. Pliny is the only one of the older writers from whom we might have expected some account of the processes of dyeing employed at his time; but, except a reference to two or three tinctorial substances, and a description of a process of obtaining several colors by one dyeing operation, which he saw practiced in Egypt (see CALICO-PRINTING), there is nothing detailed in his writings. He, in fact formally excuses himself from entering upon the subject as one not worthy of his attention. The Tyrian purple is the only dye treated of at some length in Pliny and contemporary authors; its discovery and employment gave wealth and prosperity to Tyre and Sidon more than 1,000 years, B.C. In the days of the Roman conquests in the East it was reserved under penal statutes for imperial use; its production then declined, and eventually both the material and the art of using it were lost. From Pliny's description, modern investigators were enabled to rediscover the shell-fish which yielded the dye, but the colors furnished by it were neither so bright nor so permanent as those obtainable from much less costly dyeing materials; and there is reason to conclude that the most brilliantly-tinted garments of an Egyptian priest of Isis or Osiris, or the mantle of a Roman emperor, were poor and dull in hue compared with those within reach of a domestic servant of the present time.

From many independent sources—Homer, Strabo, Herodotus, etc.—it is clearly shown that the manufacture of colored tissues was carried on by the Oriental nations. A knowledge of the art spread slowly westward, but there are few records of its existence to be found from the time of Pliny to about the thirteenth century. It would appear that the Jews held the secret or the monopoly of the dyeing art during this long period. It is not to be supposed that the art of dyeing was ever completely lost; the records of particular seats of the art only indicate that at such places some special excellence had been acquired which gave them a higher reputation than was enjoyed by others. The domestic records of all modern nations speak of dyers and dyed cloths. Among the ancient laws of Ireland are some which lay down the number of colors that may be employed in the dress of various classes of society, the monarch alone being permitted to wear seven colors; from which it may be inferred that if the Irish at a very early period were not dyers, they at least had variously-dyed garments. Similar facts can be adduced of all countries that possess an early literature.

From the perishable nature of textile substances and their comparatively small intrinsic value, very few ancient examples of the dyer's art have been preserved. We have, however, one account of a cloth containing dyed yarn which may have been in the dyer's hands in Egypt 1,000 years before the Christian era; and we

have still in good preservation ecclesiastical vestments containing dyed silks which are certainly 600 to 700 years old.

Although many eminent chemists have worked and written upon the subject, there still remains much difference of opinion as to what actually takes place in dyeing operations. The simplest cases of dyeing are those in which only two substances are employed—the fiber to be dyed and the coloring matter—and where the process of dyeing consists in nothing more than leaving the two materials in contact for a certain time at a convenient temperature. Of natural coloring matters few can be practically used in this simple way without some previous chemical treatment. The artificial coloring matters from aniline, however, illustrate this kind of dyeing very well. To obtain the finest shades of mauve, magenta, purple, and numerous others colors upon wool and silk fiber the whole process consists in placing the material in a solution of the requisite color and of sufficient quantity to give the desired shade; it absorbs the color, becoming dyed, while the solution is rendered nearly colorless. During the process the fibrous material is kept in a constant state of movement, so that the dye solution shall have equal access to all portions, the temperature employed and time allowed being regulated according to the necessities of the case. The color absorbed by the fiber has entered into an intimate state of combination with it, since it cannot be washed out again; a true dyeing has taken place. Besides the aniline colors, the older artificial dyes—sulphindigotic acid, picric acid, and one or two others—have the same property of combining directly with wool and silk.

There are other cases of dyeing closely resembling the foregoing, in which the resulting dyed stuff may be considered as being a binary compound of fiber and coloring matter, but in which the methods of application are less simple. These may be taken generally as consisting in the use of materials or processes which bring a previously insoluble coloring matter into a soluble state; thus the pink colors of safflower are obtained by the action of an alkali; and the dyes yielded by archil, arnott, and indigo are also the result of the action of solvents. It is possible that during the process of solution important internal changes may take place in the composition of the above dyes, but if so, they are only of a temporary nature, for there is no reason to suppose that the coloring matter attached to the fiber differs in chemical composition from that which is free.

With regard to nearly all other coloring matters, the above simple processes are quite powerless to induce a permanent combination with the fiber. Let wool or silk be immersed at boiling temperature in decoctions of any of the best known natural dye-stuffs, such as cochineal, logwood, madder, quercitron bark, etc., and then washed in water, it will be found that the fibers are simply discolored, or stained of no definite shade; they have taken up but a small portion of color from the decoction, and no real dyeing has taken place.

To obtain permanent dyes from the great majority of native coloring materials, the intervention of another class of bodies entirely different from either fibrous or coloring matter is found necessary; these bodies are called *mordants*. The term mordant is found in Latin and Italian manuscripts of the twelfth and thirteenth century, as the name of an adhesive composition by means of which gold leaf could be attached to wood, marble, or metal; early dyers appropriated the word to designate a substance by means of which coloring matters could be made to adhere to fiber, and it has been retained in that sense in all modern treatises upon dyeing.

The chief mordants used in dyeing are salts of

aluminium, iron, tin, chromium, copper, and a few other metals. When a decoction of a coloring matter, say logwood or cochineal, is heated with a small quantity of a properly chosen salt of one of these metals, it is found that the coloring principle loses its solubility, forms a combination with the metallic salt or its bases, and precipitates to the bottom of the solution, leaving the supernatant liquid nearly or quite colorless. The precipitate is usually called the "lake" of the particular metal and coloring matter, which are probably in a state of chemical combination; the lakes are insoluble in water, and are only split up again into their constituents by the action of somewhat powerful chemical agents.

Fiber cannot usually be dyed by means of ready formed lakes, for the reason that they are insoluble in water and not easily soluble in any menstruum which can be safely applied to such material; they are themselves of too coarse and gross a nature to penetrate the fiber, and when applied to it rest for the most part on the surface, and are therefore easily removable by washing or mechanical friction. It is known, however, that for some colors in calico-printing lakes can be applied, but that is only in conjunction with acid salts and at a high temperature, by means of which a sort of solution is obtained while in contact with the fiber itself. The art of the dyer consists in so arranging these three elements—fiber, metallic salts, and coloring matter—that he may obtain the formation of the insoluble colored lake in the body of the fiber itself, whereby either by the lake being mechanically retained or chemically combined the fiber is permanently colored.

The most important of the red colors produced by dyeing are obtained from cochineal and from madder, the former being used for woollen and the latter for cotton goods. They are both old colors, and have arrived at their present excellence by slow degrees; they are deep and brilliant, and, as far as regards permanency, hold the highest position among all dyed colors. The processes employed are instructive as illustrating the diversity of treatment required by different fibers and coloring matters.

The most important of the blue coloring matters is indigo. This may be said, indeed, to be the most important of all coloring matters, both as regards the large quantity and monetary value of what is produced and sold, and the permanence and solidity of the dyed colors which it yields. The indigo dye is a manufactured article, prepared in the place of growth of the plant which produces it. The indigo plant could itself be used for dyeing, but from 200 to 250 lb of it would be required to produce the effect of a single pound of the prepared indigo. In England, and many other countries possessing a temperate climate, the species *Isatis tinctoria*, or woad, has been cultivated, and has been used from time immemorial for dyeing blue. Its comparative poverty in coloring matter has caused it long since to be disused by dyers as a source of color; it is, however, employed by them in the preparation of their indigo vats, but rather as a convenient material to induce fermentation than as a dye.

Indigo is distinguished from nearly all other coloring matters by its complete insolubility *per se* in water and other ordinary solvents. It dissolves to a very slight extent in heated aniline, petroleum, and acetic acid, which upon cooling redepot it; the only real solvent for it is anhydrous acetic acid mixed with a little sulphuric acid, from which water precipitates it unchanged, but this solvent is inapplicable in dyeing. But solubility is an essential condition for dyeing, and means have been found to obtain satisfactory solutions of indigo by circuitous methods which involve the use

porary destruction of its blue color and a change in its chemical composition. By various deoxidizing agents, indigo blue can be changed into a white substance, indigo white, which dissolves with facility in all alkaline liquids, forming a colorless or slightly yellow solution. On exposure to the air or other sources of oxygen, the solution yields the insoluble blue indigo, and permanently dyes any fiber which has been saturated with it.

This is the only case in which such a method of dyeing is applicable, and on that account it possesses much interest.

Yellow textiles, being less pleasing to the eye, and more readily soiled, are not nearly so much in use as those dyed with two simple colors, blue and red. The chief yellow dyes, besides fustic, are quercitron bark or its concentrated extract flavine, Avignon or Persian berries, and the now almost disused indigenous product weld. The general mordant for these is tin, sometimes with addition of alum.

The so-called simple colors—red, blue, and yellow—having now been dealt with, it remains to treat of their combinations, and this may be done briefly, the processes employed being, for the most part, similar to those already described. The compound shades in Chevreul's chromatic nomenclature amount to nearly 15,000, and it is very probable that fully that number are produced by the dyers of the present day. For practical treatment, however, the compound colors can be reduced to comparatively few classes. Mixing the simple colors one and one we obtain three compound colors—blue and yellow give green, blue and red give purple, yellow and red give orange; while there may be a normal green, purple, and orange, it is evident that all the varieties of these several colors will depend upon the proportions of their constituents. If the three simple colors be mixed together, say in equal proportions, we may get a normal brown, or even a black; but, if in unequal proportions, an immense number of shades, varying from the imagined normal brown to gray and drab, are produced. Although, in many cases, compound shades are produced by means of two or more simple colors, there are many natural as well as artificial dye-stuffs which yield them ready formed, and frequently purer than they can be otherwise obtained.

DYER. JOHN, English poet, was born in 1699 or 1700, at Aberglasney, in Carmarthenshire, where his father, Robert Dyer, successfully practiced as a solicitor. He was sent to Westminster school to be educated under Doctor Friend, and was destined to succeed to his father's business. He showed, however, an inveterate dislike to the study of the law, and, having a taste for design, he induced his parents to allow him to adopt the profession of an artist. He wandered about South Wales, sketching landscapes, and occasionally painting portraits. In 1726, his first poem, *Grongar Hill*, appeared in a miscellany published by Richard Savage, the poet. Dyer's ambition to succeed as a painter, impelled him to visit Italy, and about ten years after the publication of *Grongar Hill* he seems to have attained this great desire, and to have spent some time in the south of Europe. It was in consequence of this tour that he wrote his next poem, *The Ruins of Rome*, which appeared in 1740, and increased its author's reputation. Having fallen into bad health while painting in the Campagna, and finding that he was not destined to excel in the practice of art, he determined to enter into holy orders. In 1741, he was ordained by the Bishop of Lincoln, and presented with the living of Calthorpe, in Leicestershire. In 1751, he was translated to the living of Belchford, in Lincolnshire, to which was added, in 1752, that of Coningsby. In 1756, he ex-

changed Belchford for the wealthier incumbency of Kirby-on-Bane. In 1757, he published his longest work, the didactic epic of *The Fleece*, in four books, of which the first discoursed of the tending of sheep, the second of the shearing and preparation of the wool, the third of weaving, and the fourth, of trade in woollen manufactures. The subject was prosy, and the stately blank verse in which it was discussed gave the poem a ridiculous air. The town took no interest in it, and the wits facetiously prophesied that "Mr. Dyer would be buried in flannel." He did, in fact, very shortly afterwards follow his poem to the grave, for he died of consumption on July 24, 1758, leaving a wife and four children.

DYNAMICS properly means that science which treats of the action of force. Defining force as that which affects the motion of matter, it appears that the study of dynamics will lead to the consideration of the motion of material systems, and the laws in accordance with which this motion is changed by the mutual actions of the bodies forming such systems. But there is a sense in which we may contemplate the geometrical results of the motion of bodies without studying the forces under which, or the time during which, it takes place; and hence, there are many problems which at first sight we might be disposed to include under the head of dynamics, but which also belong to the domain of pure mathematics, and may therefore more properly be considered as a branch of geometry. On the other hand, there is a branch of dynamics which treats of pure motion without taking any account of its subject or the means by which it is produced or changed. In this branch, to which the term kinematics, though first employed by Ampère in a wider sense, may with propriety be confined, it may seem that no consideration of matter or of force is involved; but, unlike the class just alluded to, the problems which come under this head involve explicitly the element of time, and it is only after studying the laws of dynamics that we are able to furnish a theoretical measure of time satisfying the demands of the human mind. Thus any subject in which the measurement of time is involved enters on this account into the domain of dynamics.

DYNAMITE, the name applied to various explosive preparations containing nitroglycerine. The first practical application of nitroglycerine, discovered by Sobrero in 1847, was made by Alfred Nobel, who in 1863 used gunpowder soaked with it for blasting. In 1864 he found that it could be exploded by the initiative detonation of fulminating materials; and in 1867, owing to the uncertainty and danger attending its employment, he conceived the idea of mixing it with some solid and absorbent inert substance. The siliceous infusorial earth called in Germany *Kieselguhr* proved to be well adapted for this purpose, since it took up as much as three times its weight of nitroglycerine without becoming more than damp to the touch. The mixture of earth and nitroglycerine, to which was added a little alkaline material to neutralize any acid that might be set free by the latter, was termed by Nobel dynamite. Ignited in the open air, dynamite burns slowly, but it is as readily exploded as nitroglycerine itself by means of a detonating fuse; and, though not equal in bursting or breaking power to uncombined nitroglycerine, on account of the absorption by its inert constituents of part of the heat developed by the exploding shock, it is greatly superior to gunpowder, instead of which or gun-cotton it is employed in blasting coal and stone, removing piles, felling trees, and clearing stumps from forest-land. It may also be used with advantage for the destruction of cannon and for breaking up large iron castings (see *Compt. rend.* lxxii, 770).

For filling bore-holes its pasty consistency renders it a very convenient material.

DYNAMO, a modern electrical machine of vast importance in the arts and sciences. Its most usual form is a modification of the magneto-electric machine. It consists of a helix or armature of soft iron (around which is wrapped a large amount of insulated wire), which is made to revolve rapidly before the poles of a large magnet. A current of electricity is thus produced, which is conducted along the axis of the armature, upon which press brushes of metal so constructed that the circuit is rapidly opened and closed. This interrupted current is re-conducted to the armature and magnet, thus multiplying and increasing its power many times before it is conducted to the motor or lamps it is intended to operate. A contrivance called a commutator is fixed on the collar of the axle on which the armature revolves, the object of which is to insure evenness of action, and prevent the jerky, unsteady current which would otherwise result. The power of the entire machine is dependent upon the principle of a rapidly opened and closed circuit creating an induced current. The force of a current is measured in volts, and its capability of overcoming resistance in ohms.

DYNAMOMETER, an instrument for measuring force exerted by men, animals, and machines. One of the simplest forms, namely, that devised by the mechanician Graham, and improved by Desaguliers, was essentially a steel-yard in which the position of the weight on the longer arm indicated the force exerted on the shorter in order to produce equilibrium.

DYRRACHIUM. See **DURAZZO**.

DYSART, a seaport town and royal and parliamentary burgh of Scotland, in the county of Fife, nine miles northeast of Burntisland, with a station on the North British Railway.

DYSENTERY, also called **Bloody Flux**, an infectious disease with a local lesion in the form of inflammation and ulceration of the lower portion of the bowels.

Dysentery in a sporadic form may occur anywhere, but this variety of the disease is believed to depend on a different cause from that to which it is due where it prevails endemically or spreads as an epidemic; for, while isolated cases appear capable of being excited by irritating causes which act locally on the alimentary canal, and may thus be developed out of an ordinary intestinal catarrh, the dysentery of tropical climates is generally regarded as owing its origin to a specific poison of the nature of a miasm or germ, somewhat analogous to that which is believed to be the cause of malignant cholera. How, and under what circumstances, the dysentery poison is generated is still a matter of uncertainty. The frequent association of dysentery with intermittent fever has long been remarked, and has led to the belief on the part of many in a malarial origin for this disease. It is, however, doubtful whether any necessary relationship can be established between them (although a malarial form of dysentery is a well marked variety of the disease), since dysentery may be found prevailing where no evidence of malaria can be detected. At the same time certain characters of climate and soil are known to favor the increase and propagation of dysentery. Long continued high temperature of the air and ground, such as exists in the tropics, together with a soil of swampy character, are the conditions generally present where dysentery prevails endemically, and where it is propagated as an epidemic these factors are seldom absent. Among other causes well recognized as favoring the spread of epidemic dysentery are impure air and water, improper and insufficient food, unripe fruit, excessive indulgence in alcoholic liquors, and exposure to

chills in warm weather, all or many of which have been often found connected with the propagation of dysentery among large bodies of people, as in the case of armies, where also the disease has been frequently associated with outbreaks of scurvy.

DYSPEPSIA, or indigestion, is one of the most common of all complaints, but, from its intimate connection with various other morbid conditions, the term is somewhat vaguely employed. There are comparatively few diseases of any moment where some of the phenomena of dyspepsia are not present as associated symptoms, and not infrequently these exist to such a degree as to mask the real disease of which they are only complications. This is especially the case in many organic diseases of the alimentary canal, in which the symptoms of dyspepsia are often the most prominent. In its restricted meaning, however (and it is to this that the present brief notice applies), the term is used to describe a functional derangement of the natural process of digestion, apart from any structural change in the organs concerned in the act. The causes of this ailment are very numerous, but are generally regarded as bearing reference either to the food, the condition of the gastric juice, or the movements of the stomach during the process of digestion.

DYVEKE, in German often *Düveke*, and in the Latin chronicles *Columbella*, the "Little Dove," the name by which the mistress of Christian II. of Denmark is invariably designated. Her father was a certain Sigbrit Villums, who had been obliged for political reasons to leave his native country of Holland. Settling at Bergen, he opened an inn, which soon became known for something more than the hospitality of the host or the excellence of his cheer; his daughter's beauty was bush enough for the weakest wine. Val-kendorp, the chancellor, did not think it unbecoming of his priestly character to sound her praise in the ears of the young crown-prince; and accordingly, when he visited Bergen in 1507, the prince made a point of seeing the "Little Dove" for himself. In matters of this sort there is unquestionably a royal road; and so having danced with her at a ball or two, he had little difficulty in getting her to leave the inn for a house of her own at Oslo. She followed him to Copenhagen on his accession in 1512, and both her father and mother obtained unusual influence at court. In 1515 the young king, indeed, was constrained from reasons of state to marry Isabella, the sister of Charles V.; but in spite of the emperor's remonstrance, his relations with Dyvke and her parents underwent no real alteration till her sudden death in 1517. That she had been poisoned was the natural verdict of the popular feeling; and the royal suspicion fell on Torben Oxa, warden of the castle of Copenhagen, who was known to have made love to the girl before she was carried off by the prince; and was it not true that two days before her death he had sent her a present of cherries? It mattered not that the culprit was declared innocent by the royal council: "though his neck were as thick as the neck of a bull it should not save his head," raged the king; and he kept his word. Such is the story, not altogether authenticated, which has furnished a favorite theme to dramatists and novelists.

DZUNGARIA, **DSONGARIA**, or **SONGARIA**, a former Mongolian kingdom of Central Asia, raised to its highest pitch by Kaldan or Bushtu Khan in the latter half of the seventeenth century, but completely destroyed by Chinese invasion about 1757-59. It derived its name from the Dsongars, or Songars, who were so called because they formed the left wing (*dson*, left; *gar*, hand) of the Mongolian army.

E.

E is the second vowel-symbol and the fifth letter in our alphabet. In its original form among the Phœnicians it represented the rough breathing — our *h*: we have seen that A represented the smooth breathing. As the Greeks had the sound *h* at a very early period, it might have been expected that this symbol would have been taken by them with its original value. But the want of symbols to denote the vowels was apparently felt to be more imperative; therefore all the Phœnician symbols (corresponding to the Hebrew aleph, he, ayn) were taken to denote the vowel-sounds *a*, *e*, *o* respectively. The form of the symbol E has varied little from the earliest Greek times to our own. The typical sound of E in almost all languages is one of those which we denote generally by *a* in English, *e.g.*, in the word *fate* — that is, one of the simple sounds between A (English *a*h) and I (English *e*:), which are produced by raising the tongue gradually from its lowest position (at A) to its highest position (at I): in this scale of sounds the lips are not employed.

EADIE, JOHN, theologian and Biblical critic, was born at Alva, in Stirlingshire, on May 9, 1810.

From his student days Eadie bore a reputation for extensive, if not profound and accurate, scholarship, which he justified and increased during the earlier years of his ministry to such an extent that, in 1843, the church to which he belonged appointed him professor of Biblical literature and hermeneutics in its Divinity Hall. He held this appointment, along with his ministerial charge, till the close of his life, and discharged its duties with an efficiency that was universally acknowledged. While his scholarship was not minute or thorough, he was surpassed by few Biblical commentators of his day in range of learning, and by still fewer in the soundness of judgment with which his learning was applied. As a critic he was acute and painstaking; as an interpreter he was eminently fair-minded. Doctor Eadie died at Glasgow on June 3, 1876.

EADMER, or **EDMER**, an English ecclesiastic and historian of the Norman period, probably, as his name suggests, of English as opposed to Norman parentage. At an early age he was sent to the Benedictine monastery at Canterbury; and there he became acquainted with Anselm, at the time of the latter's first visit to England as abbot of Bec. The intimacy was renewed when Anselm was raised to the episcopal see; and thenceforward Eadmer was not so much the archbishop's disciple and follower as his friend and director, and that last not only by Anselm's private recognition, but by the formal appointment of Pope Urban II. So complete, indeed, was the obedience shown by the great scholastic philosopher and head of the English Church to his self-elected tutor, that he is said to have waited for his express permission before he rose from his bed, or even turned from one side to the other. After Anselm's death Eadmer accompanied Radulph, the new archbishop, to Rome, in 1119; and on their return in 1120 he was nominated to the See of St. Andrews in Scotland. Owing, however, to the refusal of the Scotch to recognize the claims put forward by Eadmer and his patron in support of the episcopal authority of the See of Canterbury, he was never formally inducted into the office. He was at Canterbury in 1121, and he spent the latter part of his life as prior of the monastery there. His death is variously assigned to the years 1123 and 1137.

EAGLE, the name generally given to the larger Diurnal birds of prey which are not Vultures; but the limits of the subfamily *Aquilina* have been very variously assigned by different writers on systematic ornithology,

and, as before observed (**BUZZARD**), there are Eagles smaller than certain Buzzards. By some authorities the *Læmmergeier* of the Alps, and other high mountains of Europe, North Africa, and Asia, is accounted an Eagle, but by others the genus *Gypætus* is placed with the *Ful-turida*, as its common English name (Bearded Vulture) shows. There are also other forms, such as the South American *Harpyia* and its allies, which, though generally called Eagles, have been ranked as Buzzards.

True Eagles inhabit all the regions of the world, and some seven or eight species at least are found in Europe, of which two are resident in the British Islands.

E.A.R. The simplest form of the organ of hearing is a small sac containing fluid, with the auditory nerve expanded upon it. Sonorous vibrations are communicated to this sac either directly through the hard parts of the head, or at the same time by a membrane exposed to the surrounding medium. Such is the form of ear found in many of the Crustacea and in the Cephalopoda. In the Vertebrata there is a progressive development and increasing complexity from the fishes up to Mammalia. For details as to the structure of the ear in the different subdivisions of the Vertebrata, reference is made to the articles treating of these, such as AMPHIBIA, BIRDS, etc.; and the structure of the human ear will be found described in the article ANATOMY.

The sense of hearing is a special sensation. the cause of which is an excitation of the auditory nerves by the vibrations of sonorous bodies. A description of sonorous vibrations and of their transmission is given in the article ACOUSTICS; here we shall consider, first, the transmission of such vibrations from the external ear to the auditory nerve, and secondly, the physiological characters of auditory sensation.

Transmission in External Ear.—The external ear consists of the *pinna*, or auricle, and the *external auditory meatus*, or canal, at the bottom of which we find the *membrana tympani*, or drum head. In many animals the auricle is trumpet-shaped, and, being freely movable by muscles, serves to collect sonorous waves coming from various directions. The auricle of the human ear presents many irregularities of surface. If these irregularities are abolished by filling them up with a soft material such as wax or oil, leaving the entrance to the canal free, experiment shows that the intensity of sounds is weakened, and that there is more difficulty in judging of their direction. When waves of sound strike the auricle, they are partly reflected outward, while the remainder, impinging at various angles, undergo a number of reflections so as to be directed into the auditory canal. Vibrations are transmitted along the auditory canal, partly by the air it contains and partly by its walls, to the *membrana tympani*. The absence of the auricle, as the result of accident or injury, has not caused diminution of hearing. In the auditory canal, waves of sound are reflected from side to side until they reach the *membrana tympani*. From the obliquity in position and peculiar curvature of this membrane, most of the waves must strike it nearly perpendicularly, and in the most advantageous direction.

Transmission in Middle Ear.—The middle ear is a small cavity, the walls of which are rigid with the exception of the portions consisting of the *membrana tympani*, and the membrane of the round window and of the apparatus filling the oval window. This cavity communicates with the pharynx by the *Eustachian tube*, which forms a kind of air-tube between the pharynx and the tympanum for the purpose of regulating pressure on the *membrana tympani*. It is generally supposed that

during rest the tube is open, and that it is closed during the act of deglutition. As this action is frequently taking place, not only when food or drink is introduced, but when saliva is swallowed, it is evident that the pressure of the air in the tympanum will be kept in a state of equilibrium with that of the external air on the outer surface of the membrana tympani, and that thus the membrana tympani will be rendered independent of variations of atmospheric pressure such as may occur within certain limits, as when we descend in a diving bell or ascend in a balloon. By a forcible expiration, the oral and nasal cavities being closed, air may be driven into the tympanum, while a forcible inspiration (Valsalva's experiment) will draw air from that cavity. In the first case, the membrana tympani will bulge outward, in the second case inward, and in both, from excessive stretching of the membrane, there will be partial deafness, especially for sounds of high pitch. Permanent occlusion of the tube is one of the most common causes of deafness.

The membrana tympani is capable of being set into vibration by a sound of any pitch included in the range of perceptible sounds. It responds exactly as to number of vibrations (pitch), intensity of vibration (intensity), and complexity of vibration (quality or timbre). Consequently we can hear a sound of any given pitch, of a certain intensity, and in its own specific timbre or quality. Generally speaking, very high tones are heard more easily than low tones of the same intensity. As the membrana tympani is not only fixed by its margin to a ring or tube of bone, but is also adherent to the handle of the malleus, which follows its movements, its vibrations meet with considerable resistance. This diminishes the intensity of its vibrations, and prevents also the continued vibration of the membrane after an external vibration has ceased, so that a sound is not heard much longer than it lasts.

Transmission in the Internal Ear.—The internal ear is composed of the labyrinth, formed of the vestibule or central part, the semicircular canals, and the cochlea, each of which consists of an osseous and a membranous portion. The osseous labyrinth may be regarded as an osseous mold in the petrous portion of the temporal bone, lined by tessellated endothelium, and containing a small quantity of fluid called the *perilymph*. In this mold, partially surrounded by, and to some extent floating in, this fluid, there is the membranous labyrinth, in certain parts of which we find the terminal apparatus in connection with the auditory nerve, immersed in another fluid called *endolymph*. The membranous labyrinth consists of a vestibular portion formed by two small sac-like dilatations, called *sacculæ* and the *utricle*, the latter of which communicates with the semicircular canals by five openings. Each canal consists of a tube, bulging out at each extremity so as to form the so-called *ampulla*, in which, on a projecting ridge, called the *crista acoustica*, there are cells bearing or developed into long *auditory hairs*, which are to be regarded as the peripheral end-organs of the vestibular branches of the auditory nerve. The cochlear division of the membranous labyrinth consists of the *ductus cochlearis*, a tube of triangular form fitting in between the two cavities in the cochlea, called the *scala vestibuli*, because it commences in the vestibule, and the *scala tympani*, because it ends in the tympanum, at the round window. These two *scalæ* communicate at the apex of the cochlea. The roof of the ductus cochlearis is formed by a thin membrane called the *membrane of Reissner*, while its floor consists of the *basilar membrane*, on which we find the remarkable organ of Corti, which constitutes the terminal organ of the cochlear division of the auditory nerve. It is sufficient to state here that this organ consists essen-

tially of an arrangement of epithelial cells bearing hairs which are in communication with the terminal filaments of this portion of the auditory nerve, and that groups of these hairs pass through holes in a closely investing membrane, *membrana reticularis*, which may be supposed to act as a damping apparatus, so as quickly to stop their movements. The ductus cochlearis and the two *scalæ* are filled with fluid. Sonorous vibrations may reach the fluid in the labyrinth by three different ways — (1) by the osseous walls of the labyrinth, (2) by the air in the tympanum and the round window, and (3) by the base of the stapes inserted into the oval window.

When the head is plunged into water, or brought into direct contact with any vibrating body, vibrations must be transmitted directly. Vibrations of the air in the mouth and in the nasal passages are also communicated directly to the walls of the cranium, and thus pass to the labyrinth. In like manner, we may experience peculiar auditive sensations, such as blowing, rubbing, and hissing sounds, due to muscular contraction or to the passage of blood in vessels close to the auditory organ. It has not been satisfactorily made out to what extent, if any, vibrations may be communicated to the fluid in the labyrinth by the round window. There can be no doubt, however, that, in ordinary hearing, vibrations are communicated chiefly by the chain of bones. When the base of the stirrup is pushed into the oval window, the pressure in the labyrinth increases, the impulse passes along the *scala vestibuli* to the *scala tympani*, and, as the only mobile part of the wall of the labyrinth is the membrane covering the round window, this membrane is forced outward; when the base of the stirrup passes outward, a reverse action takes place. Thus the fluid of the labyrinth may receive a series of pulses or vibrations isochronous with the movements of the base of the stirrup, and these pulses affect the terminal apparatus in connection with the auditory nerve.

Since the size of the membranous labyrinth is so small, measuring, in man, not more than one-half inch in length by one-eighth inch in diameter at its widest part, and since it is a chamber consisting partly of conduits of very irregular form, it is impossible to state accurately the course of vibrations transmitted to it by impulses communicated from the base of the stirrup. In the cochlea, vibrations must pass from the sacculæ along the *scala vestibuli* to the apex, thus affecting the membrane of Reissner, which forms its roof; then passing through the opening at the apex (the *helicotrema*), they must descend by the *scala tympani* to the round window, and affect in their passage the *membrana basilaris*, on which the organ of Corti is situated. From the round window impulses must be reflected backward, but how they affect the advancing impulses is not known. But the problem is even more complex when we take into account the fact that impulses are transmitted simultaneously to the utricle and to the semicircular canals communicating with it by five openings. The mode of action of these vibrations or impulses upon the nervous terminations is still unknown; but to appreciate critically the hypothesis which has been advanced to explain it, it is necessary, in the first place, to refer to some of the general characters of auditory sensation.

Certain conditions are necessary for excitation of the auditory nerve sufficient to produce a sensation. In the first place, the vibrations must have a certain amplitude: if too feeble, no impression will be produced. The minimum limit has been stated to be the sensation caused by the falling of a ball of pith, one milligramme in weight, upon a smooth surface, such as glass, from a height of one millimeter at a distance of ninety-one millimeters from the ear. In the next place, vibrations

must have a certain duration to be perceived; and lastly to excite a sensation of a continuous musical sound, a certain number of vibrations must occur in a given interval of time. The lower limit is about thirty, and the upper about 30,000 vibrations per second. Below thirty the individual impulses may be observed, and above 30,000 few ears can detect any sound at all. The extreme upper limit is not more than 35,000 vibrations per second. Auditory sensations are of two kinds—noises and musical sounds. *Noises* are caused by impulses which are not regular in intensity or duration, or are not periodic, or they may be caused by a series of musical sounds occurring instantaneously so as to produce discords, as when we place our hand at random on the keyboard of a piano. *Musical tones* are produced by periodic and regular vibrations. In musical sounds three characters are prominent—intensity, pitch, and quality. *Intensity* depends on the amplitude of the vibration, and a greater or lesser amplitude of the vibration will cause a corresponding movement of the transmitting apparatus, and a corresponding intensity of excitation of the terminal apparatus. *Pitch*, as a sensation, depends on the length of time in which a single vibration is executed, or, in other words, the number of vibrations in a given interval of time. The ear is capable of appreciating the relative pitch or height of a sound as compared with another, although it may not ascertain precisely the absolute height of a sound. What we call an acute or high tone is produced by a large number of vibrations, while a grave or low tone is caused by few. The musical tones which can be used with advantage range between forty and 4,000 vibrations per second, extending thus from six to seven octaves.

EARL, a title and rank of nobility, now the third in the order of the British peerage, and, accordingly, intervening between marquis and viscount. Earl, however, was the highest title and rank of the English nobles *post conquestum* until the year 1337, when by Edward III., the Black Prince was created Duke of Cornwall. The "earl" of England was identical with *comte* or *compte* of France; and, so long as Norman-French continued to be spoken in this country, the English "earls" were styled "counts" as well in England as on the Continent. These powerful barons represented and succeeded the Saxon Thanes who were *ealdormen*, their own title evidently having been derived from the *jarl* of Scandinavia.

The nature of a modern earldom is readily understood, since it is a rank and dignity of nobility which, while it confers no official power or authority, is inalienable, indivisible, and descends in regular succession to all the male heirs of the body of the grantee until, on their failure, it merges in the Crown. Not so was it with either the nature or the descent of the ancient earldoms of England. In early feudal times titles independent of office did not exist. The earls, or *comites*, of those days, therefore, were actual officers, each having supreme authority in his own earldom, or "county," under the Crown; each one of them also deriving from his earldom a certain fixed revenue, the possession of which was at once an appanage of his official dignity as earl, and the evidence of his lawful and recognized title to it. But an earldom has long ceased to be endowed with any official associations whatever, and has become merely a title by which its owners in male succession inherit and hold the dignity, third in rank, of a peerage. In like manner, the descent and tenure of the ancient earldoms differed in many highly-important particulars from the simple succession of the modern dignity. In the course of their chequered history, we find ancient earldoms, instead of passing by a quiet and clearly-defined succession from father to son, constantly depend-

ing on the rights of female inheritance; they are seen to have been obtained by many a husband *jure uxoris*; they appear to have been transferred in an arbitrary manner, or actually to have been divided between coparceners, or to have been retained for a while by the Crown and let out to farm. At the same time, under such strange conditions as these, and amid conflicting vicissitudes, until they finally merged in the Crown, the ancient earldoms retained their vitality. They might descend very irregularly, and become vested in successive families, but still they did not become extinct; nor were the claims of legal inheritance wholly forgotten or superseded; and, even if for a time they had been latent or had actually been superseded, they emerged under more favorable circumstances, and under fresh arrangements or modifications they were again recognized by the Crown.

EARLE, JOHN (1601?–1665), Bishop of Worcester and afterwards of Salisbury, was born at York. Earle's chief title to remembrance is his witty and humorous work entitled *Microcosmography, or 'a Piece of the World Discovered, in Essays and Characters*, which throws light on the manners of the time. First printed in 1628, it became very popular, and ran through eight editions in the lifetime of the author. A new edition with notes and appendix, containing much interesting matter, by Philip Bliss, was published in 1811. The style is quaint and epigrammatic; and the reader is frequently reminded of Thomas Fuller by such passages as this: "A university dunner is a gentlemen follower cheaply purchased, for his own money has hyr'd him."

EARLOM, RICHARD, English mezzotint engraver, was born in London in 1742. He displayed great skill as a draughtsman, and at the same time acquired without assistance the art of engraving in mezzotint. In 1765 he was employed by Alderman Boydell, then one of the most liberal promoters of the fine arts, to make a series of drawings from the pictures at Houghton Hall; and these he afterward engraved in mezzotint. His most perfect works as engraver are perhaps the fruit and flower pieces after the Dutch artists Van Os and Van Huysum. Earlom died in London, October 9, 1822.

EAR-RING, an ornament worn pendent from the ear, and generally suspended by means of a ring or hook passing through the pendulous lobe of the ear. The general usage appears to have been to have ear-rings worn in pairs, the two ornaments in all respects resembling each other; in ancient times, or sometimes more recently among Oriental races, a single ear-ring has sometimes been worn. The use of this kind of ornament, which constantly was of great value and sometimes was made of large size, dates from the remotest historical antiquity, the earliest mention of ear-rings occurring in the Book of Genesis.

By the Greeks and Romans, also, ear-rings were worn only by women; and the prevalence of this fashion among the races of classic antiquity is illustrated in a singular manner by the ears of the famous statue of the *Venus de' Medici* being bored, evidently for the reception of pendent jewels. Ear-rings invariably occupy important positions among the various remains of ancient and mediæval goldsmiths' work that from time to time have rewarded the researches of archaeological inquirers. And these early relics, with rare exceptions objects of great beauty and delicacy, never fail to exemplify the artistic styles of their periods, as they were prevalent among the races by whom each individual jewel was produced. Ear-rings of costly materials and elaborate workmanship have been brought to light in considerable numbers in the Troad and in Peloponnesus by Doctor Schliemann; jewels of the same class, of exquisite beauty, and of workmanship that is truly wonderful,

have been rescued from the sepulchers of ancient Etruria and Greece by Signor Castellani; other ear-rings of gold of characteristic forms have come down to our own times from the ancient Egyptians; we know well what styles of ear-rings were worn by the Romans of the empire and by the early Scandinavians; and recent researches among the burial places of the Anglo-Saxons have led to the discovery of jewels in considerable numbers, which among their varieties include ear-rings executed in a style that proves the Anglo-Saxons to have made no inconsiderable advance in the arts of civilization. These same ornaments, which never have fallen into disuse, enjoy at the present day a very high degree of favor; like all other modern jewels, however, the ear-rings of our own times, as works of arts, can claim no historical attributes, because they consist as well of reproductions from all past ages and of every race as of fanciful productions that certainly can be assigned to no style of art whatever.

EARTH, FIGURE OF THE. The determination of the figure of the earth is a problem of the highest importance in astronomy, inasmuch as the diameter of the earth is the unit to which all celestial distances must be referred. Reasoning, doubtless, from the uniform level appearance of the horizon in any situation in which a spectator can be placed—the variations in altitude of the circumpolar stars as one travels toward the north or south, the disappearance of a ship standing out at sea, and perhaps other phenomena—the earliest astronomers universally regarded this earth as a sphere, and they endeavored to ascertain its dimensions. Aristotle relates that the mathematicians had found the circumference to be 400,000 stadia. But Eratosthenes appears to have been the first who entertained an accurate idea of the principles on which the determination of the figure of the earth really depends, and attempted to reduce them to practice. His results were very inaccurate, but his method is the same as that which is followed at the present day—depending, in fact, on the comparison on a line measured on the earth's surface with the corresponding arc of the heavens. He observed that at Syene, in Upper Egypt, on the day of the summer solstice, the sun was exactly vertical, while at Alexandria, at the same season of the year, its zenith, distance was 78 12', or one-fiftieth of the circumference of the circle. He assumed that these places were on the same meridian; and, reckoning their distance apart as 5,000 stadia, he inferred that the circumference of the earth was 250,000 stadia. A similar attempt was made by Posidonius, who adopted a method which differed from that of Eratosthenes only in using a star instead of the sun. He obtained 240,000 stadia for the circumference. But it is impossible to form any correct opinions as to the degree of accuracy attained in these measures, as the length of the stadium is unknown. Ptolemy in his *Geography* assigns the length of the degree as 500 stadia.

The Arabs, who were not inattentive to astronomy, did not overlook the question of the earth's magnitude. The caliph Almamoun, 814 A.D., having fixed on a spot in the plains of Mesopotamia, despatched one company of astronomers northward, and another southward, measuring the journey by rods, until each found the altitude of the pole to have changed one degree. But the result of this measurement does not appear to have been very satisfactory. From this time the subject seems to have attracted no attention until about 1500, when Fernel, a Frenchman, measured a distance in the direction of the meridian, near Paris, by counting the number of revolutions of the wheel of his carriage as he traveled. His astronomical observations were made with a triangle used as a quadrant, and his resulting

length of a degree was by a happy chance very near the truth.

The next geodesist, Willebrord Snell, took an immense step in the right direction by substituting a chain of triangles for actual lineal measurement. The account of this operation was published at Leyden in 1617. He measured his base line on the frozen surface of the meadows near Leyden, and measured the angles of his triangles, which lay between Alkmaar and Bergen-op-Zoom, with a quadrant and semicircles. He took the precaution of comparing his standard with that of the French, so that his result was expressed in toises (the length of the toise is about 6.39 English feet). The work was recomputed and reobserved by Muschenbroek in 1729.

In 1637 an Englishman, Richard Norwood, published his own determination of the figure of the earth in a volume entitled *The Seaman's Practice, Containing a Fundamental Problem in Navigation Experimentally Verified, namely, Touching the Compass of the Earth and Sea and the Quantity of a Degree in our English Measures*. It appears that he observed on June 11, 1633, the sun's meridian altitude in London as $62^{\circ} 1'$, and on June 6, 1635, his meridian altitude in York as $59^{\circ} 33'$. He measured the distance between these places along the public road partly with a chain and partly by pacing. By this means, through compensation of errors, he arrived at 367,176 feet for the degree—a very fair result.

The application of the telescope to circular instruments was the next important step in the science of measurement. Picard was the first who in 1669, with the telescope, using such precautions as the nature of the operation requires, measured an arc of meridian. He measured with wooden rods a base line of 5,663 toises; and a second or base of verification of 3,902 toises; his triangulation extended from Malvoisine, near Paris, to Sourdon, near Amiens. The angles of the triangles were measured with a quadrant furnished with a telescope having cross-wires in its focus. The difference of latitude of the terminal stations was determined by observations made with a sector on a star in Cassiopeia, giving $1^{\circ} 22' 55''$ for the amplitude. The terrestrial measurement gave 78,850 toises, whence he inferred for the length of the degree 57,060 toises.

Hitherto geodetic observations had been confined to the determination of the magnitude of the earth considered as a sphere, but a discovery made by Richer turned the attention of mathematicians to its deviation from a spherical form. This astronomer, having been sent by the Academy of Sciences of Paris to the island of Cayenne, in South America, for the purpose of determining the amount of terrestrial refraction and other astronomical objects, observed that his clock, which had been regulated at Paris to beat seconds, lost about two minutes and a half daily at Cayenne and, that in order to bring it to measure mean solar time, it was necessary to shorten the pendulum by more than a line. This fact, which appeared exceedingly curious, and was scarcely credited till it had been confirmed by the subsequent observations of Varin and Deshayes on the coasts of Africa and America, was first explained in the third book of Newton's *Principia*, who showed that it could only be referred to a diminution of gravity arising either from a protuberance of the equatorial parts of the earth and consequent increase of the distance from the center or from the counteracting effect of the centrifugal force. About the same time, 1673, appeared the work of Huyghens entitled *De Horologio Oscillatorio*, in which for the first time were found correct notions on the subject of centrifugal force. It does not, however, appear that they were applied to the theoretical investigation of the

figure of the earth before the publication of Newton's *Principia*. In 1690 Huyghens, following up the subject, published his treatise entitled *De Causa Gravitatis*, which contains an investigation of the figure of the earth on the supposition that the attraction of every particle is toward the center.

Between 1684 and 1718, J. and D. Cassini, starting from Picard's base, carried a triangulation northward from Paris to Dunkirk, and southward from Paris to Collioure. They measured a base of 7,246 toises near Perpignan, and a somewhat shorter base near Dunkirk; and from the northern portion of the arc, which had an amplitude of $2^{\circ} 12' 9''$, obtained for the length of a degree 56,960 toises; while from the southern portion, of which the amplitude was $6^{\circ} 18' 57''$, they obtained 57,097 toises. The immediate inference from this was that, the degree diminishing with increasing latitude, the earth must be a prolate spheroid. This conclusion was totally opposed to the theoretical investigations of Newton and Huyghens, and created a great sensation among the scientific men of the day. The question was far too important to be allowed to remain unsettled, and accordingly the Academy of Sciences of Paris determined to apply a decisive test by the measurement of arcs at a great distance from each other. For this purpose some of the most distinguished members of their body undertook the measurement of two meridian arcs—one in the neighborhood of the equator, the other in a high latitude; and so arose the celebrated expeditions of the French Academics. In May, 1735, MM. Godin, Bouguer, and De la Condamine, under the auspices of Louis XV., proceeded to Peru, where, assisted by two Spanish officers, after ten years of laborious exertion they measured an arc of $3^{\circ} 7'$ intersected by the equator. The second party consisted of Maupertuis, Clairaut, Camus, Lemonnier, and Outhier, who reached the Gulf of Bothnia in July, 1736; they were in some respects more fortunate than the first party, inasmuch as they completed the measurement of an arc, near the polar circle, of $57'$ amplitude and returned to Europe within sixteen months from the date of their departure.

The measurement of Bouguer and De la Condamine was executed with great care, and on account of the locality, as well as the manner in which all the details were conducted, it has always been regarded as a most valuable determination. The southern limit was at a place called Tarqui, the northern at Cotchesqui. A base of 6,272 toises was measured in the vicinity of Quito, near the northern extremity of the arc, and a second base of 5,260 toises near the southern extremity. The mountainous nature of the country made the work very laborious, in some instances the difference of heights of two neighboring stations exceeding a mile. The difficulties with which the observers had to contend were increased by the opposition of the more ignorant of the inhabitants, and they were at times in danger of losing their lives. They had also much trouble with their instruments, those with which they were to determine the latitudes proving untrustworthy. But their energy and ingenuity was equal to the occasion, and they succeeded by simultaneous observations of the same star at the two extremities of the arc in obtaining very fair results. The whole length of the arc amounted to 176,945 toises, while the difference of latitudes was $3^{\circ} 7' 3''$. In consequence of a misunderstanding that arose between De la Condamine and Bouguer, their operations were conducted separately, and each wrote a full and interesting account of the operation. Bouguer's book was published in 1749; that of De la Condamine in 1751. The toise used in this measure was ever after regarded as the standard toise, and is always referred to as the *Toise of Peru*.

The party of Maupertuis, though their work was quickly dispatched, had also to contend with great difficulties. They were disappointed in not being able to make use of the small islands in the Gulf of Bothnia for the trigonometrical stations, and were forced to penetrate into the forests of Lapland. They commenced operations at Tornea, a city situated on the mainland near the extremity of the gulf; they carried a chain of triangles northward to the mountain Kittis, which they selected as the northern terminus. In the prosecution of this work they suffered greatly from cold and the bites of flies and gnats. The latitudes were determined by observations with a sector (made by Graham) of the zenith distance of α to δ Draconis. The base line was measured on the frozen surface of the River Tornea, about the middle of the arc; two parties measured it separately, and they differed by about four inches. The result of the whole was that the difference of latitudes of the terminal stations was $57^{\circ} 29' .6$, and the length of the arc 55,023 toises. In this expedition, as well as in that to Peru, observations were made with a pendulum to determine the force of gravity; and these observations coincided with the geodetical results in proving that the earth was an oblate and not prolate spheroid.

In 1740 was published in the Paris *Mémoires* an account, by Cassini de Thury, of a remeasurement by himself and Lacaille of the meridian of Paris. With a view to determine more accurately the variation of the degree along the meridian, they divided the distance from Dunkirk to Collioure into four partial arcs of about two degrees each, by observing the latitude at five stations. The anomalous results previously obtained by J. and D. Cassini were not confirmed but on the contrary the length of the degree derived from these partial arcs showed on the whole an increase with increasing latitude. In continuation of their labors, Cassini and Lacaille further measured an arc of parallel across the mouth of the Rhone. The difference of time of the extremities was determined by the observers at either end noting the instant of a signal given by flashing gunpowder at a point near the middle of the arc.

While at the Cape of Good Hope, in 1752, engaged in various astronomical observations, Lacaille measured an arc of meridian of $1^{\circ} 13' 17''$, which gave him for the length of the degree 57,037 toises—an unexpected result, which has led to the modern remeasurement of the arc by Sir Thomas Maclear.

The appearance in 1838, of Bessel's classical work entitled *Gradmessung in Ostpreussen* marks an era in the science of geodesy. Here we find the method of least squares, a branch of the theory of probabilities, applied to the calculation of a network of triangles and the reduction of the observations generally. This work has been looked on as a model ever since, and probably it will not soon be superseded as such. The systematic manner in which all the observations were taken, with the view of securing final results of extreme accuracy is admirable.

EARTHQUAKE. Though the terrible effects which are often produced by earthquakes have in all ages forced themselves upon the attention of man, it is nevertheless only within the last thirty years that the phenomena have been subjected to exact investigation. A new science has been thus established under the name of *seismology*.

Accounts of earthquakes are to be found scattered through the writings of many ancient authors, but they are, for the most part, of little value to the seismologist. There is a natural tendency to exaggeration in describing such phenomena, sometimes, indeed, to the extent of importing a supernatural element into the description. It is true that attempts were made by some

ancient writers on natural philosophy to offer a rational explanation of earthquake phenomena, but the hypotheses which their explanations involved are, as a rule, too fanciful to be worth reproducing at the present day. It is, therefore, unnecessary to dwell upon the references to seismic phenomena which have come down to us in the writings of such historians and philosophers as Thucydides, Aristotle, and Strabo, Seneca, Livy, and Pliny. Nor is much to be gleaned from the pages of mediæval and later writers on earthquakes, of whom the most notable are Fromondi (1527), Maggio (1571), and Travagini (1679).

Even at the present day, after all that has been written on the subject, but little is really known as to the origin of earthquakes. Probably several distinct causes should be recognized, for it is hardly to be supposed that all subterranean disturbances, differing, as they do, so widely in intensity and in duration, should be referable to one common mechanism. Any great concussion, even upon the surface, is competent to produce tremors which may be regarded as diminutive earthquakes; thus the great landslide at the Rossberg, in Switzerland, in 1806, was accompanied by a local quaking of the ground. Volger and Mohr have suggested that some of the small earthquakes which have been felt in Germany may be referred to the falling-in of the roof of enormous subterranean cavities formed by the long-continued solvent action of water on deposits of rock-salt, limestone, and gypsum. Such causes, however, can have given rise to only very petty shocks, and must be quite subordinate to subterranean disturbances of a more general character. The late Mr. Poulett Scrope was led to refer most earthquakes to "the snap and jar occasioned by the sudden and violent rupture of solid rock-masses, and, perhaps, the instantaneous injection into them of intumescent molten matter from beneath." He believed that the rupture of the rocks was due to expansion of deeply seated masses of mineral matter, consequent upon either increased temperature or diminished temperature. It is argued, however, by Mr. Mallet, on mechanical principles, that such fractures could produce only very weak impulses; but he believes that some earthquakes, especially those marked by long-continued tremors, may be due to the movement and crushing of rock masses by tangential pressures produced by secular cooling of the earth. Steam has always been a favorite agent with seismologists, since it is clearly competent to produce great effects by its sudden generation, or by its sudden condensation. It has been suggested that water, finding its way through fissures in the earth's crust, might reach highly-heated rocks and remain quietly, in the spheroidal condition, until a local reduction of temperature suddenly caused it to flash into steam. After all, the origin of earthquakes is probably to be regarded as part only of a much wider question. Whatever causes are competent to produce volcanic action are, in all likelihood, equally competent to produce the ordinary manifestations of seismic energy. A relation is clearly traceable between the geographical distribution of volcanoes and the chief earthquake-areas; and although it is not for a moment to be supposed that the volcano and the earthquake stand to each other in relation of cause and effect, it is nevertheless highly probable that they represent merely different expressions of the same subterranean forces.

Whatever may be the real origin of the earthquake shock, it is convenient to regard its effects as proceeding from a concussion or sudden blow delivered underground at some definite center. This center of impulse is called the *seismic focus*. It must be borne in mind, however, that such a center, so far from being anything

like a mathematical point, is in nature a subterranean region, which in many cases is no doubt of very large dimensions, measuring perhaps some miles in diameter.

From the seismic center waves are propagated in all directions through the solid materials of the earth's crust; and if the focus be situated beneath the sea, the vibrations of the ground will be accompanied by undulations of the water. Those waves which pass through the elastic materials of the earth consist, for the most part, of *longitudinal* vibrations, like those of atmospheric sound-waves, and consequently not like ordinary water-waves. In the sound-wave the air is alternately condensed and rarefied, the molecules advancing and retreating in the line of direction in which the wave is traveling. In a water-wave, on the contrary, the molecules of liquid rise and fall, or rather describe closed curves in planes which are transverse to the direction in which the undulation or wave-form advances. According to Mr. Hopkins, both orders of vibration—longitudinal and transversal—coexist in the earthquake-wave, and call for investigation. When, for example, the molecules of an iron bar are disturbed by a blow delivered at one end, both kinds of vibration are generally excited, and hence two waves are sent through the bar—the longitudinal, however, having a much greater velocity than the transversal wave. But it may be doubted whether the seismologist need concern himself with any but longitudinal vibrations. For, admitting that small transversal vibrations are generated at the seismic focus, it is probable that they would be cut off to a great extent during transmission from stratum to stratum. Indeed, the planes of junction between the several beds in stratified deposits would hinder the transmission of transversal vibrations traveling in a direction normal to the strata. Hence, Mr. Mallet maintains, that in studying the effects of an earthquake, attention may be restricted, without danger of error, to the longitudinal or normal vibrations, the transversal or tangential vibrations being neglected.

EARWIG, a name, sanctioned by common error, applied under various modifications in different languages to the somewhat odorous insects comprised in the old Linnean genus *Forficula*—an error arising in the first instance probably from their invariable habit of secreting themselves in any cavity, of which they always endeavor to reach the innermost recess (instances being known of the common species hiding itself in the ear of a person sleeping in the open air), and strengthened by the popular exaggerated idea of the strength and attributes of the anal forceps peculiar to these insects.

All the different species of earwig are of comparatively small size, and nearly all of obscure colors, mostly various shades of brown or dull yellows and reds; one South American species is white; another, from the Amazon, has blue metallic elytra, which are metallic also in another from Penang; a fourth exotic species is yellow, with black stripe; and several have opaline or iridescent wings. Eccentricity of development is shown chiefly in the forceps, which in a Nicaraguan species are as long as the rest of the body.

EAST BOSTON, a town in Suffolk County, Mass., with a population of about 31,000. It is a railway and telegraph center.

EASEMENT, in English law, is a species of servitude or limited right of use over land belonging to another. It is distinguished from a *profit*, which is a right to take the soil of another, while an easement is a right to use the soil or the produce of the soil in a way tending to the more convenient enjoyment of another piece of land.

EASTBOURNE, a watering-place on the Sussex

coast, sixty-six miles from London by railway. It is situated about three miles to the east of Beachy Head, the loftiest headland on the English Channel.

EASTER, the annual festival observed throughout Christendom in commemoration of the Resurrection of our Lord Jesus Christ. The word *Easter*—Anglo-Saxon, *Eastre*, *Eoster*; German, *Ostern*—like the names of the days of the week, is a survival from the old Teutonic mythology. According to Bede it is derived from *Eostre*, or *Osttra*, the Anglo-Saxon goddess of spring, to whom the fourth month, answering to our April—thence called *Eostur-monath*—was dedicated. This month, Bede informs us, was the same as the "Mensis Paschalis," when "the old festival was observed with the gladness of a new solemnity."

There is no trace of the celebration of Easter as a Christian festival in the New Testament or in the writings of the apostolic fathers. The sanctity of special times or places was an idea quite alien from the early Christian mind; too profoundly absorbed in the events themselves to think of their external accidents. "The whole of time is a festival unto Christians because of the excellency of the good things which have been given," writes Chrysostom, commenting on the passage I. Cor. v, 7, which has been erroneously supposed to refer to an apostolic observance of Easter. Origen also in the same spirit urges that the Christian who dwells on the truths of Christ as our Passover and the gift of the Holy Ghost, is every day keeping an Easter and Pentecostal feast. The ecclesiastical historian Socrates states with perfect truth that neither Christ nor his apostles enjoined the keeping of this or any other festival. "The apostles," he writes, "had no thought of appointing festival days, but of promoting a life of blamelessness and piety;" and he attributes the introduction of the festival of Easter into the church to the perpetuation of an old usage, "just as many other customs have been established." This is doubtless the true statement of the case. The first Christians, being derived from, or intimately connected with, the Jewish church, naturally continued to observe the Jewish festivals, though in a new spirit, as commemorations of events of which these had been the shadows. The Passover, ennobled by the thought of Christ the true Paschal Lamb, the first-fruits from the dead, continued to be celebrated, and became the Christian Easter. Thus the human instinct which everywhere craves for the commemoration of marked epochs in the personal, social, ecclesiastical, or national life, found its legitimate gratification in the public celebration of the events which are the foundation of the Christian faith.

EASTLAKE, SIR CHARLES LOCK, an eminent painter who became president of the Royal Academy in London, was born on November 17, 1793, in Plymouth, where his father, a man of uncommon gifts but of indolent temperament, was solicitor to the Admiralty and judge advocate of the Admiralty Court. Charles was educated (like Sir Joshua Reynolds) at the Plympton grammar-school, and in London at the Charterhouse. Toward 1809, partly through the influence of his fellow-Devonian, Haydon, of whom he became a pupil, he determined to be a painter; he also studied in the Royal Academy school. In 1813 he exhibited in the British Institution his first picture, a work of considerable size, *Christ Restoring Life to the Daughter of Jairus*. In 1814 he was commissioned to copy some of the paintings collected by Napoleon in the Louvre; he returned to England in 1815, and practiced portrait-painting at Plymouth. Here he saw Napoleon a captive on the *Bellerophon*; from a boat he made some sketches of the emperor, and he afterward painted, from these sketches and from memory, a life-sized, full-length portrait of him, which was pronounced a good

likeness; it belongs to the Marquis of Landsdowne. In 1817 Eastlake went to Italy; in 1819 to Greece; in 1820 back to Italy, where he remained altogether fourteen years, sojourning chiefly in Rome and in Ferrara. Subjects of banditti and peasant-life engaged his pencil mostly from 1820 onward. In 1827 he exhibited at the Royal Academy his picture of the Spartan Isidas—who (as narrated by Plutarch in the life of Agesilaus), rushing naked out of his bath, performed prodigies of valor against the Theban host. This was the first work that attracted much notice to the name of Eastlake, who in consequence obtained his election as A.R.A. In 1830 he returned to England as R. A. In 1843 he was made keeper of the National Gallery, a post which he resigned in 1847 in consequence of an unfortunate purchase that roused much animadversion; in 1855, director of the same institution, with more extended powers. During his directorship he purchased for the gallery 155 pictures, mostly of the Italian schools. He became also a D.C.L. of Oxford, F.R.S., Chevalier of the Legion of Honor, and member of various foreign academies. In 1849 he married Miss Elizabeth Rigby, a lady of some literary distinction. In 1865 he fell ill at Milan; he died at Pisa on December 24th, in the same year, and lies buried at Kensal Green.

EASTON, a borough of the United States, and capital of Northampton County, Pennsylvania, is situated on the right bank of the Delaware, immediately above the confluence of the Lehigh. As the center of a rich agricultural and mineral district, with free communication both by land and water, Easton has considerable activity at once in trade and manufacture. Population (1890) 15,000.

EAST LIVERPOOL, a railway and telegraph station of Columbiana County, Ohio. Population (1889), 11,000.

EAST ORANGE, N. J., a town of 9,000 inhabitants in Essex County. It is a railway and telegraph station.

EAST PORTLAND, Multnomah County, Oregon, is a railway and telegraph station. Pop. (1889), 6,700.

EAST SAGINAW, a city of Saginaw County, Michigan, is situated on the Saginaw River, about ninety miles north-northwest of the city of Detroit. It extends about three miles along the river, with a breadth of nearly a mile. It is the principal depot of the salt and lumber trade of the Saginaw Valley, and possesses foundries, boiler-shops, saw-mills, and shingle-mills. On the opposite bank of the river is the Jackson, Lansing, and Saginaw line. East Saginaw was incorporated as a village in 1855, and obtained a city charter in 1859. Population in 1889, about 33,000.

EAST ST. LOUIS, a railway and telegraph town of St. Clair County, Ill., containing (1889) 13,500 inhabitants. It is directly opposite St. Louis, Mo., and is really a suburb of that city. This town contains the largest stock-yards in the world, and is the great cattle distributing center of the United States. It is also the conveying point of all the railways entering St. Louis from the east.

EAU CLAIRE, the county seat of Eau Claire County, Wis., has a population (1889) of 21,668. It is a railway and telegraph station, and has an immense trade in lumber. It contains other extensive manufactures, banks, churches, schools, public library, etc. It has street railways, a telephone exchange, hotels, grain elevators, and numerous other facilities, and is rapidly increasing in wealth and importance.

EAU DE COLOGNE, a perfume so named from the city of Cologne, where its manufacture was first established by an Italian, Giovanni Maria Farina, born in 1688, and by other members of his family, some of whom made it according to a method due to one Paul Feminis. In 1874 there were in Cologne thirty-five

establishments for the preparation of the perfume, twenty-eight of which were in the hands of persons bearing the name of Farina. Eau de Cologne consists of a solution of various essential oils in strong alcohol. The purity and thorough blending of the ingredients are of the greatest importance in the process of manufacture. It was originally prepared by making a spirituous infusion of certain flowers, pot-herbs, drugs, and spices, and adding thereto, after distillation, definite quantities of several vegetable essences. See Laboulaye, *Dictionnaire des Arts et Manufactures*, vol. ii, s.v. "Parfumerie."

EBEL, HERMANN WILHELM, a distinguished philologist, was born at Berlin, May 10, 1820. He died at Misdroy, August 19, 1875.

EBERHARD, surnamed IM BART (*Barbatus*), count and afterwards first duke of Württemberg, was born December 2, 1445. He was the second son of Count Ludwig I., who died in 1450; and he succeeded his elder brother, Ludwig II., at the age of twelve (1457). In the year 1482 Eberhard, by the treaty of Minzingen, put an end to the evils which had arisen from a division of the county made in 1437 between his father and his uncle Ulrich, as representatives of the two lines of Urach and Stuttgart, and secured the future indivisibility of Württemberg, and the right of primogeniture in his own family. The treaty was made under the guarantee of the empire, and was sanctioned by an assembly of prelates, knights, and landed proprietors. By a limitation of the power of the prince agreed to at the same time, Count Eberhard became the founder of the Constitution of Württemberg. He made Stuttgart his place of residence, and retained Reuchlin in his service till his own death. Eberhard sympathized with the desire that was daily strengthening for a thorough reformation in the church; and in his own dominions he rendered great services by his regulation of convents. Some of these institutions he secularized. Though a lover of peace, he knew how to bear the sword when war was necessary; and by his courage, wisdom, and fidelity to his engagements he secured the esteem and friendship of the Emperors Frederick III. and Maximilian I., as well as that of other princes of his time. He was one of the leading members of the Grand Swabian League formed in 1488, and took part in the liberation of Maximilian, then king of the Romans, from his imprisonment at Bruges. In recognition of his great services the emperor at his first diet, held at Worms in 1495, raised Eberhard, without any solicitation on his part, to the dignity of duke, confirming at the same time all the possessions and prerogatives of his house. Duke Eberhard did not live long to enjoy his new dignity. He died at Tübingen on February 25, 1496. He had two children by his marriage; but these died in their infancy, and with him the line of Urach became extinct.

EBERHARD, AUGUSTUS GOTTLÖB, a German poet and miscellaneous writer, was born at Bützow, near Wittenberg, in 1769, and died at Dresden May 13, 1845.

EBERHARD, JOHANN AUGUSTUS, an eminent German theologian and philosopher, was born at Halberstadt, in Lower Saxony, August 31, 1739. He died January 6, 1809.

Eberhard's attainments in philosophy and literature were extensive and profound. He was master of the learned languages, spoke and wrote French with facility and correctness, and understood English, Italian, and Dutch. He had read a great deal, was thoroughly versed in the philosophical sciences, and possessed a just and discriminating taste for the fine arts. He was a great lover of music, and was himself a proficient in the art.

EBERT, FRIEDRICH ADOLF, a very eminent bibliographer, was born at Taucha, near Leipsic, 1791. After the close of his academical studies, he made his appearance as an author by the publication, in 1811, of a work on public libraries, and in 1812, of another work entitled *Hierarchie in Religionem ac Literas Commoda*. In the following year he took part in the re-organization of the Leipsic University Library, and in 1814 was appointed secretary to the Royal Public Library of Dresden. The same year he published *F. Taubmann's Leben und Verdienste*, and in 1819, *Torquato Tasso*, a translation from Ginguené with annotations. Anxious to turn to good account the rich resources open to him in the Dresden library, he undertook the work on which his reputation chiefly rests, the *Allgemeines Bibliographische Lexikon*, the first volume of which appeared in 1821, and the second in 1830. This was the first work of the kind produced in Germany, but nevertheless it had a higher aim and a more scientific character than its non-German precursors. In 1823 Ebert was called to the post of chief librarian and professor at Breslau, and at the same time was offered that of librarian to the Duke of Brunswick, at Wolfenbüttel. He accepted the latter. But early in 1825, he returned to Dresden as public librarian; he was soon after named private librarian to the king, and in 1828 chief librarian and aulic counselor.

EBINGEN, a town of Württemberg, in the circle of the Schwarzwald, on the Schmieda, a left-hand tributary of the Danube, thirty-two miles south of Tübingen and thirty-seven miles west of Ulm.

EBIONITES, a Christian sect which was separated from the general Christian Church about the end of the second century. The origin of the name has been much disputed, some deriving it from Ebion as the founder of the sect, and others from the Hebrew word poor. Those who derive the name from the Hebrew word explain it in two ways — as applicable either to the poverty of the doctrines of the Ebionites, or to the poverty of their circumstances. Undoubtedly the name was applied to them with the former significance by their enemies, but it is more probable that they employed in a bad sense a name already existing, than that they coined it to suit their purpose. That the term was originally applied to the circumstances of the Ebionites seems the only probable supposition; and the argument in support of it may be stated thus: — That the early Christians, both Jewish and heathen, were designated the poor; that the poverty of the Jewish Christians continued longer than that of the heathen Christians, and Origen states that they in particular were named the poor; and that, as the Judaizing Christians came gradually to be the only Jewish Christians who required to be distinguished from the heathen Christians, they retained the name. The fathers show a very imperfect knowledge of the origin, history, and doctrines of the Ebionites, but there cannot be any doubt that at first all Judaizing Christians went under that name. In the New Testament there is evidence of the existence of such a party, though it had not then developed into a recognized sect. This apparently did not happen till after the second destruction of Jerusalem and the founding of the heathen colony *Ælia Capitolina*, when the Emperor Hadrian banished from the neighborhood all Jews who still retained their national peculiarities. As to the particular opinions of the Ebionites the statements of the fathers are somewhat contradictory, and this for the three-fold reason — that by the isolation of the Ebionites from the general Church the information obtainable regarding them could only be imperfect; that under the general name Ebionites a good many varieties of opinions are included; and that

their opinions varied at different periods of their history. The term Ebionites is used by some writers to include the Nazarenes, who, while recognizing the binding obligation of the Mosaic law on all Jews, did not regard it as binding on heathen Christians (see NAZARENES); but at an early period the stricter Ebionites must have separated themselves from the Nazarenes, who soon became merged in the general Church.

EBOLI, or EVOLI, a town of Italy, in the province of Principato Citeriore and district of Campagna, situated about thirteen miles from Salerno, on an elevated site commanding a fine prospect over land and sea.

EBONY, the wood of various species of trees of the genus *Diospyros* and natural order *Ebenaceæ*, found in the tropical parts of Asia and America. The best kinds are very heavy, are of a deep black, and consist of heartwood only. On account of its color, durability, hardness, and susceptibility of polish, ebony is much used for cabinet work and inlaying, and for the manufacture of pianoforte keys, knife-handles, and turned articles. Ceylon ebony is furnished by *D. Ebenum*, which grows in great abundance throughout the flat country west of Trincomalee. The tree is distinguished from others by the inferior width of its trunk, and its jet-black, charred-looking bark, beneath which the wood is perfectly white until the heart is reached.

EBRO, the principal river of Spain, rises in the Cantabrian Mountains, near Reinos, in the province of Santander, flows in a general southeast direction through Old Castille, Navarre, Aragon, and Catalonia, and falls into the Mediterranean about eighty miles southwest of Barcelona, forming by its delta a very considerable excrescence on the otherwise regular outline of the coast. It has a total length of about 340 miles, and its drainage area is calculated at 31,445 square miles.

ÉCARTÉ (French, *écarté*, separated, discarded), a game at cards, of modern origin, probably first played in the Paris *salons*, in the first quarter of the nineteenth century. It is a development of a very old card game called *la triomphe*, or French-ruff.

Écarté is generally played by two persons, but a pool of three may be formed, the player who is out taking the place of the loser, and the winner of two consecutive games winning the pool. At French écarté (but not at English) bystanders who are betting may advise the players, by pointing to the cards they desire them to play, and the loser of the game goes out and one of the *rentrants* takes his place, unless the loser is playing *la chouette* (i.e., taking all bets that are offered), when he does not have to resign his seat if he loses.

ECBATANA, a name applied by the classical writers to several and possibly to no fewer than seven distinct sites—the capital of Media Atropatene, the capital of Media Magna, the citadel of Persepolis, a Syrian city on Mount Carmel, the Assyrian castle of Amadiyah, the Arsacidan stronghold of Europus, and the city of Ispahan. This diversity of application doubtless arises from the fact that the word was a descriptive epithet; but its derivation has not been ascertained, and it is even possible that under the Greek disguise we may have two totally distinct originals. According to the usual hypothesis the meaning is treasury or place of assemblage, from the Old Persian *hagmatan*. The Median use of the name is the only one of special moment, involving, as it does, a difficult question of identification. It has long been admitted on all hands that the modern Hamadan, a town of Persia at the foot of the Elvend Mountains, occupies the site and preserves the name of the great city of Ecbatana, which was the summer residence of the Persian kings from the time of Darius Hystaspis

to the Greek conquest, and afterward became the capital of the Parthian Empire. But the further identification of this Ecbatana with the Ecbatana of Herodotus, still maintained by some authorities, has been disputed by Sir Henry Rawlinson, who locates the latter city at Takht-i-Suleiman, a conical hill about half-way between Hamadan and Tabriz, which agrees in its main topographical features with the Herodotean description, and is still covered with extensive ruins of ancient date. There it was at least possible for the Median monarch Deioces to surround his palace with seven concentric walls of different colors, rising one behind the other; but, if the site of Hamadan be adopted, this part of the account, recently shown by the similar arrangement at Borsippa to be so probable in itself, must be relegated to the region of myths. One or other of the cities is possibly mentioned in the Old Testament as Achmetha or Amatha; in the Apocrypha the name frequently occurs in the form of Ekbatana.

ECCARD, JOHANNES, a celebrated composer of church music, was born at Mühlhausen, on the Unstrut, Prussia, 1553, and died in 1611.

ECCELINO, or EZZELINO DA ROMANO, fourth of the name, a famous Ghibelline chief, was born April 25, 1194. In his youth Eccelino displayed the dauntless courage and the power of dissimulation which characterized him through life. In 1226, at the head of a party of Ghibellines, he got possession of Verona, and was appointed podestat. He became one of the most faithful servants of the great emperor Frederick II., who by a charter granted in 1232, confirmed him in his possessions. Four years later (1236), he invited Frederick to enter Italy to his assistance, and in August met him at Trent. Eccelino was soon after besieged in Verona by the Guelphs, and the siege was raised by the emperor. Vicenza was next stormed, and the government was given to Eccelino. In 1237 the latter marched against Padua, became master of the city by capitulation, and crushed the spirit of the people by remorseless cruelty. The same year he took part in the siege of Mantua, and made himself master of Treviso. On the return of Frederick to Italy he joined him with a large force, and contributed to the great victory over the Guelphs at Cortenuova (November). In the following year he strengthened his connection with the emperor by marriage with Selvaggia, his natural daughter. In 1239, after entering Padua with Frederick, he was excommunicated and declared deprived of his estates by the Pope. But he still went on fighting and augmenting his dominions and perpetrating such incredible cruelties that the emperor, it is said, would fain have been rid of him. Nevertheless, Eccelino was among the auxiliaries of Frederick at the siege of Parma in 1247. At the time of Frederick's death, in 1250, Eccelino, who had been named vicar-imperial of all the districts between the Trentine Alps and the River Aglio, had extended his authority from the Adriatic to the environs of Milan. He had married a second wife in 1249. At length (1256) a crusade against this foe of the church was proclaimed by Pope Alexander IV., and a powerful league was formed, which the Venetians joined. Padua was soon lost to him; but in 1258, he defeated the army of the league and reduced Brescia. In 1259 he was called to Milan by the Ghibelline party and attempted to march on the city. He was, however, encountered by his enemies at Cassano, September 16, 1259, and was severely wounded and taken prisoner. His troops then disbanded. The great leader was resolved not to survive his fall, nor would he make his peace with the church. He tore the bandages from his wounds, refused to take food, and died at Soncino, September 26, 1259. By the death of his brother Alberico about a year later the family

became extinct, and their possessions were distributed among the conquerors.

ECCHELLENSIS, or **ECELLENSIS**, **ABRAHAM**, a learned Maronite, whose surname is derived from Eckel in Syria, where he was born toward the close of the sixteenth century. He was educated at the Maronite college in Rome, and, after taking his doctor's degree in theology and philosophy, became professor of Arabic and Syriac in the college of the Propagandists. Called to Paris in 1630 to assist Le Jay in the preparation of his polyglot bible, he contributed to that work the Arabic and Latin versions of the book of Ruth and the Arabic version of the third book of Maccabees. Being invited by the Congregation of the Propaganda to take part in the preparation of an Arabic version of the Scriptures, he went again in 1652 or 1653 to Rome, where he died in 1664. *Ecchellensis* published several Latin translations of Arabic works, of which the most important was the *Chronicon Orientale* of Ibu-ar Râhib (Paris, 1653).

ECCLES, a populous village of England, in the county of Lancaster, four miles west of Manchester by railway, and practically an outlying suburb of that city.

ECCLESIA, in Grecian antiquity, the general assembly of Athenian citizens, who met from time to time to discuss public affairs. Ecclesiæ were of two kinds, ordinary and extraordinary. The first of these were held, according to the laws of Solon, four times in each prytany, or period of thirty-five days; while the others were only summoned on some pressing emergency. When any measure of unusual importance was to be publicly debated, the people were summoned from the country by special messengers. An assembly thus convened was called a *cataclesia*.

The likelihood is that they were held at regular intervals though the days were not absolutely fixed. Ecclesiæ were originally held in the Agora or Forum. The place of meeting was subsequently removed to the Pnyx, and afterward to such of the greater temples as might be most convenient. Such of the citizens as refused to attend were fined, and six magistrates called *lexiarchs* were appointed to collect the fines. To assure a full meeting, the custom was ultimately introduced of paying the poorer classes a small sum for their attendance. According to the usual order the proceedings of an ecclesia were commenced by a lustration or ceremonial purification of the place of assembly. The victims sacrificed were usually sucking pigs, whose blood was sprinkled round the boundary of the assembly. The crier next offered up a prayer to the gods for guidance, after which the business for which the assembly had been convened was introduced. According to the Laws of Solon, the crier first called upon citizens above fifty years of age to speak, and then upon all others; but this distinction was afterward abolished, and the discussion was open from the commencement to all citizens of whatever age. The vote was generally taken by show of hands. In certain special cases, however, such as those affecting individual rights, the ballot was used. The decision to which the assembly came was called a *psephisma*. The ecclesia was sometimes adjourned from one day to the next, and it generally broke up at once if any of those present declared that he had seen an unfavorable omen, or if thunder and lightning occurred. The word *ecclesia* came to mean any assembly regularly convened, and in New Testament Greek it is used to denote the assembly of Christians in any particular place, or the Christian Church.

ECCLESIASTES, **THE BOOK OF**, has been handed down by Hebrew tradition as one of the three canonical books of Solomon, son of David, the other two being *Proverbs* and the *Song of Songs*, or *Canticles*.

Two different practices have obtained from time immemorial as to the position of this book in the Bible. According to one, which is preserved in the MSS. and editions of the Septuagint, and is followed by the MSS. and editions of the Vulgate, *Ecclesiastes* is the second in the order of the five books which, according to the Alexandrian Jews and the Greek and Latin Churches, were written by Solomon. The order of these five books in the Alexandrian and Sinaitic Codices and in the MS. Bible of Charles the Bold, circa 850 (British Museum) is *Proverbs*, *Ecclesiastes*, *Canticles*, *Wisdom* and *Ecclesiasticus*. According to the other practice the book in question is separated from those which are supposed to belong to the same author, and is joined for liturgical purposes to the other four *Megilloth*.

Thus in the oldest dated MS. of the entire Hebrew Bible yet known (1009), now in the imperial library of St. Petersburg, it is the *third* of the five Megilloth, viz., Ruth, Canticles, Ecclesiastes, Lamentations, and Esther. Though this order is also to be found in the Spanish and Italian MSS., it is by no means universal. Additional MS. 15,250 of the British Museum not only puts Ecclesiastes before Canticles, but places Ruth before the Psalms. In the fourteenth pre-Reformation German translations of the Bible (1462-1518), and in Wycliffe's English version, where the five Solomonic books are still kept together, the order of the Septuagint and Vulgate is followed, as is also the case in the English Catholic version (Douai, 1610). Luther, who was the first to remove Wisdom and Ecclesiasticus from this group, and place them with the other so-called Apocryphal books at the end of the Old Testament, has left Ecclesiasticus as second in the order of the Solomonic writings. In our first English translation of the entire Bible (1535) Coverdale followed the example of the great Continental Reformer. Hence, this narrower group and this position of Ecclesiastes in the succeeding English Bibles, and in the present Authorized Version.

There is hardly another book in the Bible which has called forth so many commentaries and suffered as much at the hands of expositors as Ecclesiastes. Nearly 350 years ago Luther remarked — "Difficult as this book is, it is almost more difficult to clear the author of the visionary fancies palmed upon him by his numerous commentators than to develop his meaning." What would this sagacious Reformer have said if he could have seen the countless speculations of which it has been the subject since his days?

ECCLESIASTICAL COMMISSION. This is a standing commission invested with very important powers, under the operation of which extensive changes have been made in the distribution of the revenues of the Church of England. It was one of the results of the vigorous movements for the reform of public institutions which followed the Reform act of 1832. In 1835 two commissions were appointed "to consider the state of the several dioceses of England and Wales, with reference to the amount of their revenues and the more equal distribution of episcopal duties, and the prevention of the necessity of attaching by commendam to bishoprics certain benefices with cure of souls; and to consider also the state of the several cathedral and collegiate churches in England and Wales, with a view to the suggestion of such measures as might render them conducive to the efficiency of the established church, and to provide for the best mode of providing for the cure of souls, with special reference to the residence of the clergy on their respective benefices."

ECCLESIASTICAL LAW generally means the law of the church, in countries where an established religion is recognized by the State, but in a more general sense

it would include the whole body of the law relating to religion. It is in this sense that the phrase is used by American lawyers, and it is only in this sense that it can be used of Ireland since the disestablishment of the State Church in that country. The relation of the ecclesiastical law to the rest of the law, especially in respect of legislation and judicature, is one of the most important points in the constitution of a country. Where the Roman Catholic religion is recognized by the State the jurisprudence of the canon law prevails, but the relations between the Papal See and the State are governed by special conventions, or concordats. See CANON LAW.

ECCLESIASTICUS. See APOCRYPHA.

ECHIDNA, or PORCUPINE ANT-EATER, one of the four known species of Monotremata, the lowest order of Mammalia. It is a native of Australia, where it chiefly abounds in New South Wales, inhabiting rocky and mountainous districts, where it burrows among the loose sand, or hides itself in crevices of rocks. In size and appearance it bears a considerable resemblance to the hedgehog, its upper surface being covered over with strong spines directed backward, and on the back inward so as to cross each other on the middle line. The spines in the neighborhood of the tail form a tuft sufficient to hide that almost rudimentary organ. The head is produced into a long tubular snout, covered with skin for the greater part of its length. The opening of the mouth is small, and from it the echidna puts forth its long slender tongue, lubricated with a viscous secretion, by means of which it seizes the ants and other insects on which it feeds. It is entirely destitute of teeth. Its legs are short and strong, and form, with its broad feet and large solid nails, powerful burrowing organs. In common with the other monotremes, the male echidna has its heel provided with a sharp hollow spur, connected with a secreting gland, and muscles capable of pressing the secretion from the gland into the spur; but as the animal has never been observed to use this in defending itself, the spur probably serves some other purpose than that of offense or defense. It is a nocturnal or crepuscular animal, generally sleeping during the day, but showing considerable activity by night. When attacked it seeks to escape either by rolling itself into a ball, its erect spines proving a formidable barrier to its capture, or by burrowing into the sand, which its powerful limbs enable it to do with great celerity. "The only mode of carrying the creature," says Bennet (*Gatherings of a Naturalist in Australasia*) "is by one of the hind legs, when it may be removed to any place with great facility, for an attempt to seize it by any other part of the body, from its powerful resistance and the sharpness of the spines, will soon oblige the captor to relinquish his hold." They are exceedingly restless in confinement, and constantly endeavor, by burrowing, to effect their escape. From the quantity of sand and mud always found in the alimentary canal of the echidna, it is supposed that these ingredients must be necessary to the proper digestion of its insect food.

ECHINODERMATA, a class of marine animals which constitutes with the class *Scolecida* the sub-kingdom *Annuloida* of Huxley, or, according to some authorities, is a distinct sub-kingdom of the Invertebrata. Familiar examples of the Echinodermata are the Sea-urchins, Star-fishes, Feather-stars, and Sea-cucumbers of the coasts of Britain. The characteristics of the group may be briefly summarized thus:—The adult presents a more or less marked, although never perfect, radial symmetry of parts; the larva, in most instances, is bilaterally symmetrical. The perisome or dermis develops a calcareous skeleton of numerous interlocking

plates or of detached plates or spicules. The muscular tissue consists chiefly of unstriated fibers. The intestinal canal terminates in a distinct anal aperture. An aquiferous or ambulacral system of organs, regarded as homologous with the water-vascular system of the *Scolecida*, is generally present; and there is a nervous system consisting of a ganglionated circular or polygonal cord, which surrounds the oesophagus, and sends off branches parallel with and superficial to the ambulacral canals. The sexes are in the majority of cases distinct, and the reproductive organs are generally placed symmetrically with respect to the radially disposed skeleton.

ECHO, in Greek mythology, one of the *Oreades* or mountain nymphs. The word denotes mere sound; and the stories told of her are so transparent that they can scarcely be said to belong to the class of fully-developed myths. As *Selene* to the Greek was clearly the moon, so *Echo* was the being who could not speak until she was spoken to, and then could only repeat the last words of the speaker. This penalty is said to have been inflicted upon her by *Hera*, whom the nymph, by her chatter, had prevented from discovering the sports of *Zeus* among her sister *Oreades*. Another tale relates that *Echo* fell in love with *Narcissus*, who was deaf to her entreaties, and that in her grief she wasted away until nothing remained but her bones and her voice. The name *Narcissus*, again, denotes one who is oppressed by lethargy, and thus the story becomes a counterpart to that of *Selene* and *Endymion*.

For **ECHO**, in physics, see **ACOUSTICS**.

ECIJA, a city of Spain, in the province of Seville, fifty-three miles east northeast of the city of that name, on the left bank of the *Jenil*, *Xenil*, or *Genil*, the ancient *Singulis*, a tributary of the *Guadalquivir*. The river, thus far navigable, is there crossed by a fine old bridge; and the antiquity of the town betrays itself both by the irregularity of its arrangement, and by its walls and gateways, and its numerous inscriptions and other relics. Population, 27,216.

ECK, JOHANN MAIER VON, the most indefatigable and important opponent of Martin Luther, was born November 13, 1486, at Eck, in Swabia. His father was a peasant, who becoming bailiff of the village, added Eck to the family name Maier. The son entered in his eleventh year the University of Heidelberg, from which he went to Tübingen, where he took his master of arts degree in his fourteenth year, and afterward studied theology. He then went to Cologne, and afterward to Freiburg, where, besides studying jurisprudence and mathematics, he taught philosophy. In 1506 he published a work on logic. From this time he appears to have devoted his attention chiefly to theology; and his skill and versatility in scholastic disputations having attracted considerable notice, the Duke of Bavaria, in 1510, presented him to the chair of theology in the University of Ingolstadt. In 1515 he took part in a public disputation at Bologna, and in 1516, in one at Vienna, on both occasions gaining great admiration. In 1518 he circulated privately his *Obelisci* against Luther's thesis on the mass. Luther intrusted his defense to Carlstadt, who, besides answering the insinuations of Eck in 400 distinct theses, declared his readiness to meet him in a public disputation. The challenge was accepted, and the disputation took place at Leipzig in the following year. It lasted for three weeks, and Luther as well as Carlstadt opposed himself to Eck. The general impression was that victory rested with Eck; but apparently success only embittered his animosity against his opponents, for from that time his whole efforts were devoted to Luther's overthrow. He induced the universities of Cologne and Louvain to

condemn the Reformer's writings, and in 1520 went to Rome to obtain strict regulations against what he called the "Lutherans." He returned with the celebrated papal bull against Luther's writings, and with the commission to publish it, but at Leipsic met with so bad a reception from the inhabitants, that he was compelled to take refuge in the Pauline convent. Eck took a leading part in the Augsburg Diet of 1530, and in the conferences at Worms in 1540 and at Ratisbon in 1541. He died in 1543.

ECKERMANN, JOHN PETER, friend of Goethe, and editor of his works, was born at Winsen, in Hanover, in 1792. After serving as a volunteer in the War of Liberation (1813-1814), he obtained an appointment in the war office at Hanover. At the age of twenty-five he became a student at the gymnasium of Hanover, and afterward at the University of Göttingen, returning to Hanover in 1822. His acquaintance with Goethe began in the following year, when he sent to him the manuscript of his *Beiträge zur Poesie*. Soon afterward he went to Weimar, and was appointed private secretary to the poet. For several years he was also engaged as tutor to the son of the grand duke. In 1830 he traveled in Italy with Goethe's son. In 1838 he was named councilor of the grand duchy, and appointed librarian to the grand duchess. Eckermann is chiefly remembered for the important contributions to our knowledge of the great poet contained in his *Gespräche mit Goethe*, the first and second parts of which appeared in 1836, and the third in 1848.

ECKERSBERG, CARL VILHELM, painter, was born in South Jutland in 1783, and died in 1853.

ECKHART, JOHANNES, or, according to the general designation, Meister Eckhart, the first of the great speculative mystics, flourished during the latter part of the thirteenth century and the early part of the fourteenth. Extremely little is known of his life; the date and place of his birth are equally uncertain; 1260 has frequently been given as the date of his birth; it was in all probability some years earlier, for we know that he was advanced in age at the time of his death, about 1327. He appears to have entered the Dominican order, and to have acted for some time as professor at one of the colleges in Paris. His reputation for learning was very high, and in 1302 he was summoned to Rome by Boniface VIII., to assist in the controversy then being carried on with Philip of France. From Boniface he received the degree of doctor. In 1304 he became provincial of his order for Saxony, and in 1307 was vicar-general for Bohemia. In both provinces he was distinguished for his practical reforms and for his power in preaching. In what manner he ceased to hold his high office we do not know; indeed, several years of his life about this time are a complete blank. Toward 1325 we hear of him as preaching with great effect at Cologne, where he gathered round him a numerous band of followers. Before this time, and in all probability at Strasburg, where he appears to have been for some years, he had come in contact with the BEGHARDS (*q. v.*) and Brethren of the Free Spirit, whose fundamental notions he may indeed be said to have systematized and expounded in the highest form to which they could attain. In 1327 the opponents of the Beghards laid hold of certain propositions contained in Eckhart's works, and he was summoned before the Inquisition at Cologne. The history of this accusation is by no means clear. Eckhart appears, however, to have made a conditional recantation—that is, he professed to disavow whatever in his writings could be shown to be erroneous. Further appeal, perhaps at his own request, was made to the Pope, and in 1329 a bill was published condemning certain propositions extracted from Eckhart's works.

But before its publication Eckhart was dead. The exact date of his death is unknown. Of his writings, several of which are enumerated by Trithemius, there remain only the sermons and a few tractates. From his works it is evident that he was deeply learned in all the philosophy of the time. He was a thorough Aristotelian, but by preference appears to have been drawn toward the mystical writings of the neo-Platonists and the pseudo-Dionysius. His style is unsystematic, brief, and abounding in symbolical expression. His manner of thinking is clear, calm, and logical, and he has certainly given the most complete exposition of what may be called Christian pantheism.

ECKHEL, JOSEPH HILARIUS (1737-1798), one of the most distinguished numismatists, was born at Enzersfeld in Lower Austria, received his early education at the Jesuit's College, Vienna. Here, at the age of fourteen, he was admitted into the order, still pursuing his studies with earnestness, and especially devoting himself to antiquities and numismatics. Eckhel's great work is the *Doctrina Numorum Veterum*, in 8 vols., the first of which was published in 1792, and the last in 1798. The author's rich learning, comprehensive grasp of his subject, admirable order and precision of statement in this masterpiece drew from Heyne enthusiastic praise, and the acknowledgment that Eckhel, as the Coryphæus of numismatists, had, out of the mass of previously loose and confused facts, constituted a true science.

ECLECTIC, a term of which the most important application is in philosophy, denotes a thinker whose views are borrowed partly from one, partly from another, of his predecessors. It perhaps requires to be noted that, where the characteristic doctrines of a philosophy are not thus merely adopted, but are the modified products of a blending of the systems from which it takes its rise, the philosophy is not properly eclectic.

The history both of ancient and of modern eclecticism shows that eclecticism naturally springs up when, while literary culture makes the doctrines of the chief philosophies familiar and preserves an interest in philosophy, the first pursuit of thinkers is not purely speculative truth.

In the second century B. C., a remarkable tendency toward eclecticism began to manifest itself. The longing to arrive at the one explanation of all things which had inspired the older philosophers became less earnest; the belief, indeed, that any such explanation was attainable began to fail; and thus men, not feeling the need of one complete logical system, came to adopt from all systems the doctrines which best pleased them. In Panætius we find one of the earliest examples of the modification of Stoicism by the eclectic spirit; and about the same time the same spirit displayed itself among the Peripatetics.

The philosophy that took root in Rome, where philosophy never became other than a secondary pursuit, was naturally for the most part eclectic; of this Cicero is the most striking illustration—his philosophical works consisting of a mixture, with little or no blending, of doctrines borrowed from *Stoicism*, *Peripateticism*, and the skepticism of the Middle Academy. And, not to mention numerous names of minor importance, eclecticism had another representative at Rome in the school of Sextius and Sotion, who were half Stoic, half Pythagorean.

In the last stage of Greek philosophy the eclectic spirit produced remarkable results outside the philosophies of those properly called eclectics. Thinkers chose their doctrines from many sources—from the venerated teaching of Aristotle and Plato, from that of the Pythagoreans and of the Stoics, from the old Greek mythology,

and from the Jewish and other Oriental systems. Yet, it must be observed that neo-Platonism, Gnosticism, and the other systems which are grouped under the name Alexandrian, were not truly eclectic, consisting, as they did, not of a mere syncretism of Greek and Oriental thought, but of a mutual modification of the two. It is true that several of the neo-Platonists professed to accept all the teaching both of Plato and of Aristotle, but, in fact, they arbitrarily interpreted Aristotle so as to make him agree with Plato, and Plato so as to make his teachings consistent with the Oriental doctrines which they had adopted, in the same manner as the schoolmen attempted to reconcile Aristotle with the doctrines of the church. Among the early Christians, Clement of Alexandria, Origen, and Sinesius were eclectics in philosophy.

The eclectics of modern philosophy are too numerous to name.

ECLIPSE. See ASTRONOMY.

ECSTASY, a term applied to a morbid mental condition, in which the mind is entirely absorbed in the contemplation of one dominant idea or object, and loses for the time its normal self-control. With this there is commonly associated the prevalence of some strong emotion, which manifests itself in various ways, and with varying degrees of intensity. This state resembles in many points that of catalepsy, already described, but differs from it sufficiently to constitute it a separate affection. The patient in ecstasy may lie in a fixed position like the cataleptic, apparently quite unconscious, yet, on awaking, there is a distinct recollection of visions perceived during this period. More frequently there is violent emotional excitement, which may find expression in impassioned utterances, and in extravagant bodily movements and gesticulations. This disease usually presents itself as a kind of temporary religious insanity, and has frequently appeared as an epidemic. It is well illustrated in the celebrated examples of the dancing epidemics of Germany and Italy in the Middle Ages, and the *Convulsionnaires* of St. Medard, at the grave of the Abbé Paris, in the early part of the last century, and in more recent times has been witnessed during periods of religious excitement in this country. This disorder is highly contagious, and readily spreads by imitation. As a disease, it is more curious than important, and for its treatment requires the judicious exercise of moral influences rather than medical remedies, although these also, as in the case of similar ailments, may often be used with advantage.

ECUADOR, or, in full, **LA REPUBLICA DEL ECUADOR**, an independent state of South America, traversed by the equator, from which it takes its name, and bounded on the north by the United States of Colombia, east by Brazil, south by Peru, and west by the Pacific Ocean. Its area cannot be stated with any close approximation to accuracy, for large districts along the frontiers are equally claimed by Ecuador and the neighboring powers; and even within the limits of undisputed possession no systematic survey has been undertaken. According to Villavicencio, the area is only 127,205 English square miles; but F. Hanemann, quoted by Behm and Wagner, makes it 248,580 by planimetric calculation on the basis of H. Kiepert's map in his *Hanatlant*, 1872. Kiepert places the eastern limit at 70° west of Greenwich, but does not assign to Ecuador the disputed territory along both sides of the Marañon. The population was stated in 1885 at 1,004,651, exclusive of 600,000 "wild" Indians.

The Galapagos Islands, an uninhabited group with an area of 2,951 square miles, are dependent on Ecuador.

The great South American chain of the Andes traverses Ecuador from south to north, and forms the pre-

dominant factor in its physical constitution. Its two Cordilleras run parallel with each other, and inclose an elevated longitudinal valley about forty miles wide and 300 miles long, which is divided by the transverse ridges, or *nudos*, of Tiupullo and Assuay into the three great basins of Quito, Ambato, and Cuenca, which are again subdivided by inferior ridges into irregular sections. The eastern Cordillera attains in several of its summits a height of more than 18,000 feet; the western has only one (Chimborazo) which exceeds 17,500. The Quito plain lies 9,500 feet above the sea, Ambato 8,500, and Cuenca 7,800; the last two are comparatively barren and melancholy, while the first, though so much the loftiest of the three, is clothed with luxuriant vegetation. The altitude of the Tiupullo or Chisinchir ridge, stretching across from Cotopaxi to Iliniza, is 11,500 feet, and that of the Assuay ridge about 13,500. Both the western and eastern slopes of the chain are marked by magnificent valleys of erosion; the former, which contains at least six successive terraces, has an average gradient of 275 feet per mile, while that of the latter is only 125. Granitic, gneissoid, and schistose rocks are the main materials of the gigantic pile; the summits are capped with trachyte and porphyry, and the sides are strewn with immense beds of gravel and volcanic debris. Nowhere in the whole Andean system do the individual mountains attain so magnificent a development as in the Ecuadorian section. Around the valley of Quito alone there are twenty noble volcanic summits, presenting a beautiful variety of form—here a perfect and there a truncated cone, there a jagged and blasted crest, and there again a smooth and snow-covered dome.

While Ecuador can boast of nothing worthy of the name of an inland sea, it possesses a large number of lakes, either lying in the laps and extinct craters of the Andes, or formed in the lowlands by the overflows of its rivers. To the former class belong San Pablo, at the foot of Imbabura, five miles in circumference; Cuy-cocha, on the southeast skirt of Cotacachi, 10,200 feet above the sea, and thus one of the highest lakes in the world; Yaguar-cocha, or "Lake of Blood," not far from Ibarra; Quiroto, about 4,600 feet in diameter; Colta, to the east of Riobamba, with a powerful whirlpool in the center; and Colay, to the south of Riobamba, which exhales gases poisonous enough to stupefy the birds that attempt to cross, and thus helps to fill the larder of the Indians in its neighborhood. The largest specimens of the second class lie along the Napo. Thermal springs are mentioned in numerous localities—as at Belermos and San Pedro del Tingo, northeast of Quito; at Cachillacta, in the district of Nanegal; in the skirts of Rumiñagui; at Timbugpoyo, near Tangua; on the slopes of Chimborazo; and at Baños, near the foot of Tungurahua.

Ecuador is less rich in minerals, especially in the precious metals, than any other of the South American States. Silver, gold, iron, mercury, lead, tin, zinc, copper, antimony, manganese, alum, sulphur, and salt are all said to be found; but very few of these exist in sufficient quantity to affect the destinies of national industry. Gold mixed with silver has long been obtained in the neighborhood of Zarume, in the province of Loja, and it is gathered by the Indians from the river beds in the Napo and Canelos territory, and more particularly from the Bobonaza. From the coast of the Pacific upward to a height of about 3,000 or 4,000 feet, the vegetation is strictly tropical, including among its economical species the banana, the sweet potato, rice, maize, the bread-fruit tree, indigo, cotton, cocoa, the yam, the mandioc, and the sugar cane. Most of these become rare above 3,000 feet, but a few, like the sugar cane, are cultivated as high as 8,000. Few parts of the world

can vie in richness of vegetation with the alluvial valley of Guayaquil, which in the matter of fruit trees alone produces cocoa-nuts, pine-apples, pomegranates, shad-docks, oranges, lemons, apricots, chirimoyas, pultas, granadillas, tunas, mangoes, pacays, and many others of less importance. Between 6,000 and 10,000 feet above the sea the European cereals are successfully cultivated, along with the chick-pea, the broad-bean, the cabbage, the quinoa (*Chenopodium Quinoa*), potatoes, *Oxalis*, *Basella*, and *Tropaeolum*. Wheat will not form the ear lower than at 4,500 feet, or ripen higher than at 10,500; but rye and barley can be grown at a still greater elevation. The oak, the elm, the ash, and the beech never descend lower than to 5,500 feet, and are seldom found higher than 9,200.

In its forest-lands alone Ecuador possesses almost inestimable resources. Seven different species of cinchona are known to exist within its borders; the *Ceroxylon andicolis* and many lesser species of palm abound on both sides of the Cordilleras; and redwood, Brazil wood, palo de cruz, guaiacum or holy wood, ebony, cedar, and aguana are a few of the more usual timber trees. In the dripping forests of the west grows the *sindi-caspi*, which forms excellent fuel even in its moistest condition. Copal, dragon's blood, india-rubber, storax, and several valuable dye-stuffs are obtained from indigenous plants. The cabaya or agave, the chambiri palm, etc., yield textile fibers; and the leaves of the toquilla (*Carludovica palmata*) and the mocora, a cocoa-nut-like tree, furnish material for the well-known hats.

The fauna of Ecuador does not present a great variety among the mammalia; but the birds, and still more the insects, are very numerous. The jaguar, the puma, the ounce, and the ocelot, are the chief representatives of the cat tribe; monkeys of various species are common; the four characteristic animals of the Andean range, the llama, the guanaco, the vicuña, and the alpaca, are fairly abundant; large herds and flocks of European cattle and sheep are found in the rich pasture of the paramos; and horses, asses, and mules are reared in sufficient numbers to be articles of export. Few rivers are more densely peopled with alligators than the Guayaquil and Esmeraldas; and several of the largest species of snakes are natives of the warmer regions of the country, though in the Cordilleras and plateaus the reptilia are very rare. The condor, the turkey-buzzard, the gallinazo, the crane, and the pelican are among the larger birds; and ducks, pheasants, and partridges are not uncommon.

Commerce and General Progress.—The principal article of foreign export is cocoa, of which two kinds especially are distinguished in the market—the fine “up-river” quality and the so-called Machala quality. Spain is the greatest purchaser, then England, Germany, Peru and Chili. The collection of India-rubber is becoming an important trade; and pupils trained at the government expense have been sent into the various provinces to superintend the introduction of indigo cultivation. The other articles, arranged in order of importance, are—coffee, Cinchona bark, vegetable ivory, straw hats, sole-leather, dried skins, bamboos, and small quantities of sarsaparilla, algarroba, tamarinds, tobacco, pita, orchilla, rice, mats, and saibo-wool. A bank of issue and deposit, called the Bank of Ecuador, with a capital of \$1,000,000, was established in 1868.

The principal articles of export and their value in 1885 were: 23,227,048 pounds of cocoa, worth \$5,080,918; specie and bullion, \$688,354; hides, \$269,405; coffee, 1,850,088 pounds, worth \$249,763; quinine-bark, 298,697 pounds, worth \$112,000; India-rubber, 427,254 pounds, worth \$102,541; imports from the United

Sates, \$1,049,392; exports to the United States, \$1,131,169.

The total consumption of cocoa in 1887 was 80,000,000 pounds, of which France received 26,000,000 pounds; Spain 16,000,000, England 14,000,000, and the United States 8,500,000 pounds. Of ivory nuts 237,157 quintals were shipped from the 1st of January to the 1st of October, 1887.

The republic is in connection with the world's telegraph system via the Isthmus of Tehuantepec, and there were at the close of 1886 at Guayaquil 160 subscribers to the telephone system. The building of railroads to the interior is making rapid progress. Upon this point President Caamaño in his message to Congress in 1887 said: “Without going into details I may say that work on the Southern Railroad is proceeding steadily; that the telegraph has been extended to the provinces Imbabura, Carchi, Bolivar, and Los Rios, and that the lines have begun to be laid in those of Loya, Manabi, and Oro; that the national wagon-road is being repaired in those of Pinchincha, Leon, Tungurahua, and Chimborazo; that an iron bridge is in course of construction over Lit River; that the bridges on the northern and southern wagon-roads are nearly finished; that we are laying out a botanical garden; that all public buildings are being kept in constant state of repair, and a government edifice is being built at Chatham; that we have furnished our coast with three additional light-houses; that we concluded work on our handsome national theater; that we are again laying the cable at the bottom of Guayaquil River, and that in this matter of telegraphic cables we are attending simultaneously to several enterprises.”

Finance.—The indebtedness of the republic in 1887, was \$13,196,095 capital, and \$1,152,487 interest due thereon, constituting a total indebtedness of \$14,348,582. This debt includes the portion of the Colombia debt assumed by Ecuador at the dissolution of New Granada into three independent States (1830). The public revenue in 1886 was \$2,421,403. The Bank of Ecuador declared a dividend of 20 per cent. for 1886. In April, 1888, this bank advanced to the government of the republic \$900,000 at 9 per cent. interest, for which the income of Guayaquil is pledged.

Details of Political and Social Condition.—The main basis of the Ecuadorian constitution dates from 1843, but several important modifications have been introduced at various periods. The executive power is vested in a responsible president elected by a majority of votes among a body of 900 electors appointed by popular suffrage. He has no right of veto, and cannot interfere in any way with the sitting of the congress. Besides a vice-president, who is elected in the same way as the president, and, according to the decree of 1869, discharges the functions of home secretary, the cabinet comprises a minister of war and marine, a minister of finance, the president of the supreme court, and a prominent member of the clerical body. The legislative assembly, or congress, is divided into two houses, the upper consisting of sixteen senators, the lower of thirty deputies elected by popular suffrage. The judicial system comprises a supreme court at Quito, three upper courts, provincial courts, municipal courts presided over by the alcaldes, and parochial courts. Jury trial is employed in criminal cases, but many districts are very evidently too ignorant for the satisfactory working of the method. A governor-general is appointed for Guayaquil and Quito respectively. Slavery was abolished in 1854; all races and classes are equal in the eyes of the law; and there are no hereditary distinctions of rank or title. The military force numbers only about 1,200 men, and the marine consists of three

small steamers. The finances have long been in a rotten condition, and trustworthy information is of difficult attainment.

Artificial means of communication are still, for the most part, in a very primitive condition, though few countries have so little reason to be content with their natural highways by land or water.

With the partial exception of such rude forms of belief as still linger among the semi-civilized Indians, the only religion professed by the Ecuadorian population is the Roman Catholic. Nowhere, in modern times, have Jesuits and priests had it more their own way. Even in 1876, Dr. Borrero, the "liberal" president, thought it expedient to declare that he would protect the religion of his fathers, which he believed "had not an enemy in all Ecuador." Two years before, in spite of the extremely depressed state of the finances, 10 per cent. of the part of the Church revenue belonging to the state was assigned to the Pope as an annual offering. The oath of a Protestant has no value in a court of justice; and it was regarded as an extraordinary stretch of liberality to allow the formation of a Protestant burial-ground at Quito, in 1867. Monkish orders, that lost their influence in Europe centuries ago, still flourish in Quito—Trinitarians, Dominicans, Augustinians, Brown Franciscans, Black Franciscans, Lazarists, etc.

Education has hitherto been left in the hands of the clergy, and primary education is consequently in a very defective condition.

History.—The territory of the present republic of Ecuador, when first it becomes dimly visible in the gray dawn of American history, appears to be inhabited by upward of fifty independent tribes, among which the Quitus seem to hold the most important position. About 280 A.D. a foreign tribe is said to have forced their way inland up the valley of the Esmeraldas; and the kingdom which they founded at Quito lasted for about 1,200 years, and was gradually extended, both by war and alliance, over many of the neighboring dominions. In 1460, during the reign of the fourteenth *Caran Shyri*, or king of the Caran nation, Hualcopo Duchisela, the conquest of Quito was undertaken by Tupac Yupanqui, the Inca of Peru; and his ambitious schemes were, not long after his death, successfully carried out by his son Huaina-Capac, who inflicted a decisive defeat on the Quitonians in the battle of Hatuntaqui, and secured his position by marrying Pacha, the daughter of the late Shyri. By his will the conqueror left the kingdom of Quito to Atahualpa, his son by this alliance; while the Peruvian throne was assigned to Huascar, an elder son by his Peruvian consort. War soon broke out between the two kingdoms, owing to Huascar's pretensions to supremacy over his brother; but it ended in the defeat and imprisonment of the usurper, and the establishment of Atahualpa as master both of Quito and Cuzco. The fortunate monarch, however, had not long to enjoy his success; for Pizarro and his Spaniards were already at the door, and by 1533 the fate of the country was sealed. As soon as the confusions and rivalries of the first occupation were suppressed, the recent kingdom of Quito was made a presidency of the Spanish vice-royalty of Peru, and no change of importance took place till 1710. In that year it was attached to the vice-royalty of Santa Fé; but it was restored to Peru in 1722. When, toward the close of the century, the desire for independence began to manifest itself throughout the Spanish colonies of South America, Quito did not remain altogether indifferent. The Quitonian, Dr. Eugenio Espejo, and his fellow citizen, Don Juan Pío Montufar, entered into hearty coöperation with Pardo and Zena, the leaders of the revolutionary movement at Santa Fé; and it was at Espejo's sug-

gestion that the political association called the *Escuela de Concordia* was instituted at Quito. It was not till 1809, however, that the Quitonians made a real attempt to throw off the Spanish yoke; and both on that occasion and in 1812 the royal general succeeded in crushing the insurrection. In 1820 the people of Guayaquil took up the cry of liberty; and in spite of several defeats they continued the contest, till at length, under Antonio José de Sucre, who had been sent to their assistance by Bolívar, and reinforced by a Peruvian contingent under Andres de Santa Cruz, they gained a complete victory on May 22, 1822, in a battle fought on the side of Mount Pichincha, at a height of 10,200 feet above the sea. Two days after, the Spanish president of Quito, Don Melchor de Aymeric, capitulated, and the independence of the country was secured. A political union was at once effected with New Granada and Venezuela on the basis of the republican constitution instituted at Cucuta in July, 1821—the triple confederation taking the name of Colombia.

A disagreement with Peru in 1828 resulted in the invasion of Ecuador and the temporary occupation of Cuenca and Guayaquil by Peruvian forces; but peace was restored in the following year after the Ecuadorian victory at Tarqui. In the early part of 1830 a separation was effected from the Colombian federation, and the country was proclaimed an independent republic. General Juan José Flores was the first president, and in spite of many difficulties, both domestic and foreign, he managed to maintain a powerful position in the state for about fifteen years. Succeeded in 1835 by Vincente Rocafuerte, he regained the presidency in 1839, and was elected for the third time in 1843; but shortly afterward he accepted the title of generalissimo and a sum of 20,000 pesos, and left the country to his rivals. One of the most important measures of his second presidency was the establishment of peace and friendship with Spain. Roca, who next attained to power, effected a temporary settlement with Colombia, concluded a convention with England against the slave trade, and made a commercial treaty with Belgium. Diego Noboa, elected in 1850 after a period of great confusion, recalled the Jesuits, produced a rupture with New Granada by receiving conservative refugees, and thus brought about his own deposition and exile. The democratic Urbina now became practically dictator, and as the attempt of Flores to reinstate Noboa proved a total failure, he was quickly succeeded in 1856 by General Francisco Robles, who, among other progressive measures, secured the adoption of the French system of coinage, weights, and measures. He abdicated in 1859 and left the country, after refusing to ratify the treaty with Peru, by which the defender of Guayaquil had obtained the raising of the siege. Dr. Gabriel García Moreno, professor of chemistry, the recognized leader of the conservative party at Quito, was ultimately elected by the national convention of 1861. Distrust in his policy, however, was excited by the publication of some of his private correspondence, in which he spoke favorably of a French protectorate, and the army which he sent under Flores to resist the encroachments of Mosquera, the president of New Granada, was completely routed. His first resignation in 1864 was refused; but the despotic acts by which he sought to establish a dictatorship only embittered his opponents, and in September, 1865, he retired from office. While he had endeavored to develop the material resources of the country, he had at the same time introduced retrograde measures in regard to religion and education. The principal event in the short presidency of his successor, Gerónimo Carrion (May, 1865–November, 1867), was the alliance with Chili and Peru against Spain, and the ban-

ishment of all Spanish subjects. Several important changes were made by congress in the period between his resignation and the election of Xavier Espinosa, January, 1868: the power of the president to imprison persons regarded as dangerous to public order was annulled; and the immediate naturalization of Bolivians, Chilians, Peruvians, and Colombians was authorized. Espinosa had hardly entered on his office when, in August, 1868, the country was visited by an earthquake, in which 30,000 people are said to have perished throughout South America. The public buildings of Quito were laid in ruins; and Ibarra, Otavalo, Cotacachi, and several other towns were completely destroyed. Next year a revolution at Quito, under Moreno, brought Espinosa's presidency to a close; and though the national convention appointed Carvajal to the vacant office, Moreno succeeded in securing his own election in 1870 for a term of six years. His policy had undergone no alteration since 1865: the same persistent endeavor was made to establish a religious despotism, in which the supremacy of the president should be subordinate only to the higher supremacy of the clergy. The tyranny, however, came to a sudden end on August 14, 1875, when the president was assassinated in Quito by three of his private enemies. The consequent election resulted in the appointment of Doctor Borrero, who, in his address to congress, December, 1876, promised "to maintain, during the tenure of the responsible office to which he had never aspired, full political liberty and freedom of the press." An insurrection headed by Veintemilla, the military commandant of Guayaquil, had already broken out; and on December 14th, the government forces under Aparicio were completely routed at Galte.

EDAM, a town of the Netherlands, in the province of North Holland and arrondissement of Hoorn, about eleven miles northeast of Amsterdam, and hardly a mile from the present limits of the Zuider Zee, at the junction of two branch canals.

EDDA, the original signification of which is "great-grandmother," is the title given to two very remarkable collections of old Icelandic literature. Of these only one bears that title from antiquity; the other is named *Edda* by a comparatively modern misnomer. The only work known by this name to the ancients was the miscellaneous group of writings attributed to Snorri Sturluson (1178-1241), a scholar of Jon Löfssön, and the greatest name in old Scandinavian literature. It is believed that the *Edda*, as he left it, was completed about 1222. Whether he gave this name to the work is doubtful; the title first occurs in the Upsala Codex, transcribed about fifty years after his death. The collection of Snorri is now known as the *Prose* or *Younger Edda*, the title of the *Elder Edda* being given to a book of ancient mythological poems, discovered by the Icelandic bishop of Skálholt, Brynjulf Sveinsson, in 1643, and erroneously named by him the *Edda of Sæmund*.

EDELINCK, GERARD, one of the greatest copper-plate engravers, was born at Antwerp in 1649. The rudiments of the art, which he was to carry to a higher pitch of excellence than it had previously reached, he acquired in his native town under the engraver Cornelisz Galle. But he was not long in reaching the limits of his master's attainments; and then he went to Paris to improve himself under the teaching of De Poilly. This master likewise had soon done all he could to help him onward, and Edelinck ultimately took the first rank among line engravers. His excellence was generally acknowledged; and having become known to Louis XIV. he was appointed, on the recommendation of Le Brun, teacher at the academy established at the Gobelins, for the training of workers in tapestry. He was also

entrusted with the execution of several important works. In 1677 he was admitted member of the Paris Academy of Painting and Sculpture. The work of this great engraver constitutes an epoch in the art. His prints number more than four hundred, and it is asserted that amongst them there is no work of poor or middling quality, although many of his subjects were poor and unworthy of the high art which he lavished upon them. Edelinck stands above and apart from his predecessors and contemporaries, especially in this that he excelled, not in some one respect, but in all respects — that while one engraver attained excellence in correct form, and another in rendering light and shade, and others in giving color to their prints and the texture of surfaces, he, as supreme master of the burin, possessed and displayed all these separate qualities, and that in so complete a harmony that the eye is not attracted by any one of them in particular, but rests in the satisfying whole. Edelinck was the first to break through the custom of making prints square, and to execute them in the lozenge shape. Among his most famous works are a Holy Family, after Raphael; a Penitent Magdalene, after Charles le Brun; Alexander at the Tent of Darius, after Le Brun; a Combat of Four Knights, after Leonardo da Vinci; Christ surrounded with Angels; St. Louis praying; and St. Charles Borromeo before a crucifix — the last three after Le Brun. Edelinck was especially good as an engraver of portraits, and executed prints of many of the most eminent persons of his time. Among these are those of Le Brun, Rigaud, Philippe de Champagne (which the engraver thought his best), Santeuil, La Fontaine, Colbert, John Dryden, Descartes, etc. He died at Paris in 1707. His younger brother John, and his son Nicholas, were also engravers, but did not attain to his excellence.

EDEN, Hebrew (denoting pleasure or delight), was the first residence of Adam and Eve, according to the Old Testament Scriptures. The passage in which its geographical position seems to be indicated (Gen. ii, 8-14) has been from the earliest times the subject of a discussion as ingenious and elaborate as it has been fruitless. Its general position is given as "eastward," i.e., to the east of the place where the narrative was written. Of the four rivers mentioned, the Euphrates is undoubtedly the same which is still known by that name, and the Hiddekel has been almost universally identified with the Tigris. The object of commentators who have sought to put a literal construction on the passage has, therefore, been to identify the Pison and the Gihon, by finding two rivers, which together with the Euphrates and the Tigris, fulfill the condition stated in Gen. ii, 10, "And a river went out of Eden to water the garden; and from thence it was parted and became into four heads." As there is no river which forms a common source for the Euphrates, the Tigris, and two others, recourse has been had to a strained construction of one kind or other. Josephus, for example, supposes the river which is the common source to have been the ocean stream which surrounds the earth, and identifies the Pison with the Ganges and the Gihon with the Nile; and in this he is followed by many of the fathers. Calmet, Rosenmüller, and others, again, suppose the river which is the common source to have been a region of springs, and, by making the Pison and the Gihon mountain streams, place the site of Eden in the Highlands of Armenia. Calvin, Huet, and Bochart place Eden in lower Babylonia, on the supposition that the Pison and the Gihon are the two channels by which the united rivers Euphrates and Tigris enter the Persian Gulf. Luther and others, such as Clericus, and more recently Baumgarten, have hazarded the supposition that the flood altered the course

of the streams, and thus rendered it impossible to identify the locality of Eden from the description given in Genesis. These may suffice as specimens of the almost innumerable solutions that have been offered of what is now generally admitted to be an insoluble problem.

EDEN, THE HONORABLE EMILY, novelist and miscellaneous writer, was the seventh daughter of the first Lord Auckland, and was born in 1795. Happily gifted by nature, her literary faculties and tastes were fostered by a liberal education. In 1835 she accompanied her brother, Lord Auckland, to India, on his appointment as governor-general, and remained with him during his term of office, which covered the period of the Afghan war. Returning to England in 1841, she made herself favorably known as a writer by the publication, three years later, of her *Portraits of the Princes and People of India*. She was also author of two novels, entitled *The Semi-detached House* and *The Semi-attached Couple*, which first appeared anonymously under the editorship of Lady Theresa Lewis. In these works she gives clever and amusing delineations of Anglo-Indian life and manners as she saw them. In 1866 was published a series of her letters to her sister, written from India, and entitled *Up the Country*. Her private journal, at present unpublished, is said to be still more attractive and full of sparkling anecdote and graphic sketches. Another volume, entitled *Letters from India*, edited by her niece, the Hon. Eleanor Eden, was published in 1872. For many years Miss Eden lived at Kensington, and her house was one of the most frequented centers of London intellectual and fashionable life. She afterward removed to Richmond, and there died, August 5, 1869. Her eldest sister, Eleanor, attracted the warm affection of William Pitt, who, however, did not feel justified in making her an offer of marriage. This was, it is supposed, the only love passage in Pitt's history. She afterward married Lord Hobart, and died in 1851.

EDENTATA, an order of placental mammals characterized by the total absence of medium incisor teeth. Such teeth as are found in edentate species are composed entirely of dentine and cement, without enamel; they likewise grow for an indefinite period, and are consequently without root; and so far as yet discovered there is no displacement of the first teeth by any second set, except in a few of the armadilloes. This order contains the sloths, armadilloes, and ant-eaters.

EDESSA, the ancient capital of Macedonia, previously known as *Æge*, was situated forty-six miles west of Thessalonica, on the banks of a beautiful stream in the very center of the kingdom, and at the head of a defile commanding the approaches from the sea-coast to the interior of the country. It was the original residence of the Macedonian kings; and even after the seat of government was removed to the more accessible Pella, it continued to be the burial-place of the royal family. At the celebration of his daughter's marriage in the town, Philip II. was murdered by Pausanias in 336 B.C. His greater son Alexander was buried at Memphis, through the contrivance of Ptolemy; but the bodies of his granddaughter Eurydice and her husband Arrhidæus were removed by Cassander to the ancestral sepulcher. On the occupation of the town by Pyrrhus the royal tombs were plundered by the Gallic mercenaries. The modern city of Vodena is built on the site of Edessa, and preserves a few unimportant remains of ancient buildings.

EDESSA, or, as it is now called, Urfa or Orfa, a city of Northern Mesopotamia, on the Daisun, a left-hand tributary of the Euphrates, fifty-five miles west of Diarbekir and fifty-nine east of Biredjik.

EDFU, in Coptish Atbo, from the old Egyptian Tebu, a village of Upper Egypt, in the province of

Said, situated about a third of a mile from the left bank of the Nile, fifty-five miles below the cataracts of Syene.

EDGEFIELD, a town of 9,000 inhabitants, situated in Davidson County, Tenn.

EDGEWORTH, MARIA, the creator of the novel of national manners and moral purpose, was the daughter, by his first wife, of Richard Lovell Edgeworth noticed below. She was born at Hare Hatch, Berkshire, in 1767, and did not see Ireland until she was twelve years old. She was educated by her father, who devoted himself with great enthusiasm to the intellectual advancement of his children. In most of her literary undertakings Miss Edgeworth had the advantage of her father's criticism, who also wrote introductions to her novels. "It is my business," he used to say, "to cut and correct: yours to write on." Many tales and essays were written by Maria for private pleasure before publication was thought of. *Practical Education* (1798) was a joint work by father and daughter. In 1800 appeared *Castle Rackrent*, which at once made for her a reputation as a national novelist. This was followed soon after by *Belinda*, and by the *Essay on Irish Bulls*, published in partnership with her father, and intended to familiarize the English public with Irish humor and pathos. The work is so thoroughly the joint-product of two minds, that Miss Edgeworth, in writing her father's life, cannot tell distinctly which parts are his, but says that passages in which classical allusions and quotations occur must be her father's as she was "entirely ignorant of the learned languages" (*Memoirs*, second edition, ii, 315). In 1804 appeared *Popular Tales*; in 1806, *Lenora*; in 1809 the first installment of *Fashionable Tales*, which were finished in 1812; in 1814 *Patronage*; and in 1817 *Harrington*, *Ormond*, and *Comic Dramas*, which failed on the stage. The death of her father, in that year, recalled her from novel writing to fulfill the sacred duty of completing his *Memoirs*, which were given to the world in 1820, and of which a second edition was called for in 1821. In 1822 appeared *Rosamond, a Sequel to Early Lessons*, a work published earlier with contributions from Mr. Edgeworth's pen. In August, 1823, Miss Edgeworth visited Sir Walter Scott at Abbotsford, where she remained a fortnight; and Scott repaid this visit at Edgeworthstown exactly two years afterward. In 1825 Miss Edgeworth further continued her tales for the young by the publication of *Harry and Lucy*. In 1834 appeared *Helen, a Tale*, her last and one of her best novels; and she afterward wrote *Orlandino*, a book for children. Her *Letters for Literary Ladies* were suggested by a correspondence between Thomas Day and her father as to the propriety of "female authorship," in which the former stoutly maintained the negative.

Miss Edgeworth died on May 21, 1849, after having lived to see her works take rank as English classics. Her influence was deep and lasting. Sir Walter Scott confesses that he was anxious to do for Scotland what Miss Edgeworth had done for Ireland.

EDGEWORTH, RICHARD LOVELL, father of the subject of the foregoing notice, and her associate in many literary undertakings, was born at Bath, in 1744. The greater part of his life, however, was spent at Edgeworthstown, or Edgeworthstown, in the county of Longford, Ireland, where the Edgeworth family had been settled for upward of 150 years.

EDINBURGH, COUNTY OF, or MID-LOTHIAN, one of the lowland counties of Scotland, is bounded on the north by the Firth of Forth, on the northwest by Linlithgowshire or West-Lothian, on the southwest by Lanarkshire, on the south by Peebles and Selkirk, and on the east by Roxburgh, Berwick, and Haddington or

East-Lothian. The area comprises 362 square miles, or 231,724 acres.

The surface of the county presents a great variety of scenery. The Pentland Hills advance boldly from the southwest to within five miles of the sea, rising to a relative height of from 1,000 to 1,300 feet. They generally present a rounded appearance, and are covered with heath or grass. The southeastern corner of the county is occupied by the Moorfoot Hills, which form a continuation of the Lammermuirs, and attain, in Blackhope Scar, a height of 2,136 feet.

The cultivated condition of the county is incompatible with a varied and remarkable fauna; but the botanist finds a rich harvest of smaller plants.

Though not a mining district *par excellence*, Mid-Lothian possesses a considerable amount of mineral wealth.

Owing its origin no doubt to the development of literature and publishing in the metropolis, the chief manufacturing industry in Mid-Lothian is paper-making.

The population of the entire county in 1871, was 328,379, of whom 153,892 were males, and 174,487 females. Excluding the boroughs of Edinburgh, Leith, Portobello, and Musselburgh, the population of the county proper numbered in 1851, 57,843 persons, and in 1871, 74,126, indicating an increase of 28 per cent within that period. This increase occurs principally in the parishes of West-Calder, Lasswade, Colinton, Dalkeith, and Kirknewton.

It is believed that Cramond was once a Roman seaport; and various objects of Roman art have been discovered in the vicinity and upward along the bank of the Almond. On several heights are remains of early military works—the most important being that on Dalmahoy Hill, Braidwood Castle, in the parish of Penicuik, and the so-called Castle Greg, on the Harburn estate in Mid-Calder parish.

The history of the county is of little importance apart from that of the city of Edinburgh.

EDINBURGH, the ancient capital of Scotland, is situated in the county of Mid-Lothian or Edinburgh, to the south of the Firth of Forth.

The site of Edinburgh is altogether remarkable as that of a large city, and is the chief source of its peculiar characteristics. It occupies a group of hills separated by deep ravines, and is the central feature of a landscape of rare beauty. The county of Mid-Lothian forms toward the southeast a wild hilly district, diversified with fertile cultivated tracts, but, over an extensive area, broken into a rough pastoral country, rising at various points to upward of 2,000 feet above the level of the sea. On the north it is bounded by the Firth of Forth, from the shores of which the land slopes gradually toward the south till it merges in the range of the Pentland Hills, with its contour diversified by various undulations and abrupt heights. On this irregular ground, amid the outlying spurs of the Pentlands, a bold cliff of trap-rock, which rises through the sandstone strata of the district, appears to have early attracted attention from its capacity for defense. Maitland, the earliest historian of the city says, "The situation of Edinburgh plainly shows that its origin is owing to the castle;" and from its standing in St. Cuthbert's parish, which surrounds the castle rock, he assumes that the first settlement was in the low ground to the northwest. From this a road anciently led up past the Well-House Tower, along the northern slope of the Castle Hill. By this access Queen Mary and other royal visitants rode up to the castle on various public entries, and then returned through the town, by way of the High street and Canongate, to Holyrood.

In the reign of Malcolm Canmore the Castle of Edinburgh included a royal palace. There his pious queen,

Margaret, the grand-niece of Edward the Confessor, died in 1093. It continued to be a royal residence during the reigns of her three sons, and hence the first rapid growth of the upper town may be referred to the twelfth century. Edinburgh was long an exposed frontier town within a territory only ceded to Malcolm II. about 1020; and even under the earlier Stuart kings it was still regarded as a border stronghold.

The other three royal burghs associated with Edinburgh were Stirling, Roxburgh, and Berwick; and their enactments form the earliest existing collected body of the laws of Scotland. But the determination of Edinburgh as the national capital, and as the most frequent scene of parliamentary assemblies, dates from the assassination of James I., in 1436. Of the thirteen parliaments summoned by that sovereign, only one, the last of them, was held at Edinburgh. But his assassination that same year, in the Black-friar's monastery at Perth, led to the abrupt transfer of the court and capital from the Tay to the Forth. The coronation of James II. was celebrated in Holyrood Abbey instead of at Scone; and the widowed queen took up her residence, with the young king, in the Castle of Edinburgh. Of fourteen parliaments summoned during this reign, only one was held at Perth, five met at Stirling, and all the others at Edinburgh; and notwithstanding the favor shown for Stirling as a royal residence in the following reign, every one of the parliaments of James III. was held at Edinburgh. James II. showed special favor to Edinburgh by conferring on it various privileges relating to the holding of fairs and markets, and the levying of customs; and by a royal charter of 1452, he gave it preëminence over the other burghs. Further immunities and privileges were conferred on it by James III.; and by a precept, known as the Golden Charter, of 1482, he conferred on the provost and magistrates the hereditary office of sheriff, with power to hold courts, to levy fines, and to impose duties on all merchandise landed at the port of Leith. Those privileges were renewed and extended by various sovereigns, and specially by a general charter granted to the city by James VI., in 1603, the year of his accession to the English throne.

James III. was a great builder; and, in the prosperous era which followed on his son's accession to the throne, the new town of the fifteenth century spread over the open valley to the south, with the Cowgate as its chief thoroughfare. But the death of James IV., in 1513, along with other disastrous results of the battle of Flodden, brought this era of prosperity to an abrupt close. The citizens hastened to construct a second line of wall, inclosing the Cowgate and the heights beyond, since occupied by Greyfriars' Church and Heriot's Hospital, but still excluding the Canongate, as pertaining to the Abbey of Holyrood. The new wall long determined the limits of the town. For upward of two centuries after its erection the requisite accommodation for the increasing population was secured by crowding buildings on every available spot within the protection of the walls, displacing the earlier structures by lofty piles of building within the straightened area, and projecting from them overhanging additions of timber. By those means the northern and southern slopes of the ridge, along which the main street of the old town was formed, were crowded with the picturesque alleys and closes which contributed so much to the peculiar aspect which the ancient city still retained when, in 1808, Scott thus pictured it:—

"Such dusky grandeur clothed the height,
Where the huge castle holds its state,
And all the steep slope down,
Whose ridgy back heaves to the sky,
Piled deep and massy, close and high,
Mine own romantic town."

Within this ancient civic area stand the collegiate Church of St. Giles—for a time the cathedral of the diocese of Edinburgh—the Parliament House and law courts, and the civic Council Chambers. Here, also, in earlier years of the present century, stood the old Tolbooth, or Heart of Mid-Lothian, and other buildings of note, including mansions of the Scottish nobility, and even of royalty. But it forms a mere historic nucleus of the modern city, which, for a century past, has been extending over the neighboring heights, northward toward the ancient seaport of Leith, and southward and westward to the lower slopes of the Pentland Hills.

The name of Edinburgh is a memorial of the intrusion of a new people, when, in the beginning of the seventh century, the race of Ida reared the fortress of Edwin's-burgh on the rocky height, and thereby established the Anglican power on the Forth.

For centuries after the founding of the Anglican kingdom of Northumbria, the lowlands extending from the Forth to the Tweed continued to be a debatable land held by uncertain tenure; it was to a large extent settled anew by Anglo-Saxon and Norman colonists under Malcolm Canmore and his sons. Edinburgh accordingly remained a frontier post beyond the Forth, until it became the capital of the Stuart kings. Then, for the first time, it rose into importance as a town. It shared in their triumphs, and bore the chief brunt in their repeated disasters; and, even after their forfeiture of the crown, some of its most picturesque associations are with the Stewart claimants for the throne of their ancestors. Nevertheless Edinburgh continued till near the close of the eighteenth century to be circumscribed within the narrow bounds of the ancient city and the burgh of Canongate, with the main street extending along the height of the slope from the Castle to Holyrood Palace, and the Cowgate as the only other thoroughfare admitting of the passage of wheeled carriages.

The progress of Edinburgh during the present century has been remarkable in many ways. In 1801 the population, including the Canongate and other extra-mural suburbs, but exclusive of Leith, was 66,544; in 1871 it had risen to 196,979. But the characteristics of the city and its population are peculiar. From an early date the special associations with the national literature have been identified with the ancient capital. One of the foremost charges against James III. was that he preferred the society of artists and musicians to that of the rough barons of his court. Under the patronage of his son, the printing press was first set up at Edinburgh in 1507. At the court of Holyrood, so long as James IV. reigned, the rivalry of rank and genius involved no conflict. Of the three great poets of the reign, Dunbar is believed to have been a grandson of the Earl of March; Walter Kennedy was a younger son of the first Lord Kennedy; Gawin Douglas the third son of the Earl of Angus; and Dunbar enumerates six or seven other literary contemporaries. In the following reign Sir David Lindsay was the leader among the literary men of the Scottish capital; and in 1554 his famous *Satire of the Three Estates* was enacted in the presence of the court at Greenside, a natural amphitheater on the northwest side of the Calton Hill, which appears to have been the favorite tilting ground, and general arena for public displays—including even the burning of heretics and witches.

The names of Knox (died 1572), Buchanan (1582), Alexander Montgomery (1605), Drummond of Hawthornden (1649), Allan Ramsay (1757), Smollett (1771), Fergusson (1774), and Burns (1796), carry on the literary associations of the Scottish capital nearly to the close

of the eighteenth century, when various causes combined to give them a new significance and value. In the later years of the eighteenth and the beginning of the nineteenth century the University of Edinburgh was distinguished by teachers who gave it a prominent rank among the European schools of science and letters; while members of the legal faculty disputed with them in friendly rivalry. Gregory (died 1701), the Monros (the elder 1767, the second 1817), Cullen (1790), Black (1799), Playfair (1819), Dugald Stewart (1828), and Leslie (1832), all figure among the professors of the university; while David Hume (1776), Adam Smith (1790), Robertson the historian (1793), Henry Mackenzie (1831), and others of the same literary circle gave ample range to its intellectual triumphs. To this succeeded the era of *Marmion* and *The Lady of the Lake*, followed by the *Waverley Novels* and *Blackwood's Magazine* and the *Edinburgh Review*, when Scott, Wilson, Brougham, Jeffrey, Cockburn, and Chalmers gave the character to the literary society of Edinburgh which won for it the name of Modern Athens. To this the actual correspondence of its site to that of Athens no doubt also contributed. Various travelers have noted the resemblance between the distant view of Athens from the Ægean sea, and that of Edinburgh from the Firth of Forth. The popular recognition of this unfortunately tempted the citizens to aim at a reproduction of the Parthenon of Athens on the summit of the Calton Hill, in commemoration of Wellington and his brothers in arms, by whom the victory of Waterloo was made the harbinger of peace to Europe. The abortive scheme, as an incomplete project, undesignedly reproduces the ruin of the ancient Acropolis.

Literary taste and culture still characterize Edinburgh society; but—apart from the exceptional influences of preëminent genius—the causes which largely contributed to give it so special a character no longer exist. In Scott's early days a journey to London was beset with difficulties, and even dangers; whereas railways have now brought it within a few hours' distance, and Scottish artists and literary men are tempted to forsake Edinburgh for the great center of all national activities. Nevertheless, the influence of the past survives in many ways. Edinburgh is not a manufacturing city, but retains even now something of the character of the Scottish capital, as the resort of those whose means enable them to enjoy in ease and comfort its social amenities, without indulging in the costly gayeties which a London season involves. The supreme courts of law hold their sittings in Edinburgh, and still retain some of the most characteristic features impressed on them when remodeled by James V. in 1532. The Court of Session has the lord president as its head; and the High Court of Justiciary is presided over by the lord justice-general and the lord justice-clerk. The judges, as senators of the College of Justice, have also the title of lord, not infrequently coupled with that of their landed estate—as Fountainhall, Kames, Hailes, Monboddo, Woodhouselee, or Colonsay; and the advocates and writers to the signet—as the two leading branches of the Scottish legal profession are styled—help to give a legal tone to the society of the Scottish capital.

The university, with the medical schools and other educational institutions, have long added to the attractions of Edinburgh. As a school of art it has also acquired a special character, and the names of Runciman, Nasmyth, Raeburn, Wilkie, Allan, M'Culloch, Watson Gordon, Harvey, and Drummond (without referring to living painters and sculptors) are all familiar, and some of them eminently distinguished in art. A school of design was established at Edinburgh in 1760 by the Honorable Board of Trustees for Manufacturers, at

which Raeburn, Wilkie, Allan, and other leading Scottish artists, along with many others of less note, obtained their preliminary training. With its aid the application of art to manufacturing design and decoration has received an important stimulus. Steel and wood engraving have also largely benefited by the same facilities, and this in its turn has aided in fostering the printing-press as a special branch of trade for which Edinburgh has long been celebrated. In early days the names of Chepman, Millar, Bassandyn, Charteris, Hart, Watson, and Ruddiman figure among its celebrated typographers, and more recent enterprise has added to the reputation of the Edinburgh press.

The central feature of Edinburgh is the castle, which includes structures of very diverse dates. The oldest of its buildings, occupying the very summit of the rock, is St. Margaret's Chapel, an interesting relic, belonging at latest to the reign of Queen Margaret's youngest son, David I., and by some good authorities believed to be the actual chapel in which the Queen of Malcolm Canmore was worshipped. Next in interest are the ancient hall and other remains of the royal palace, which form two sides of the quadrangle styled palace yard, and occupy the summit of the rock toward the south. These buildings include the apartments occupied by the regent, Mary de Guise, and her royal daughter, Queen Mary, and the room in which James VI. of Scotland and I. of England was born. Here also is the Crown Room, in which are deposited the Scottish regalia, or "The Honors of Scotland," as they are called, along with a beautiful sword of state presented to James IV. by Pope Julius II., and the jewels restored to Scotland on the death of Cardinal York, the last of the Stuarts. The arsenal, a modern building on the west side of the castle rock, is capable of storing 30,000 stand of arms. In the armory a display of arms of various dates is made, and on the Argyll battery, immediately to the south of St. Margaret's Chapel, stands a huge piece of ancient artillery, called Mons Meg, of which repeated mention is made in Scottish history.

Holyrood Palace, the venerable abode of Scottish royalty, was originally an abbey of canons regular of the rule of St. Augustine, founded by David I. in 1128. The ruined nave of the abbey church still retains portions of the original structure. Conjoined to this is a part of the royal palace erected by James IV. and V., including the apartments occupied by Queen Mary, and the scene of the murder of Rizzio in 1566.

The Parliament House, in which the later assemblies of the Scottish estates took place, until the dissolution of the Parliament by the Act of Union of 1707, has ever since been set apart as the place of meeting of the supreme courts of law. The great hall, with its fine open-timbered oaken roof, under which the last Scottish Parliament assembled, still stands, and forms the ante-room of the advocates and other practitioners, and of their clients, during the session of the supreme courts.

The General Register House for Scotland, which stands at the east end of Princes Street, is an important adjunct to the supreme courts; and, in its ample provisions for the registry and safe-keeping of all deeds and judicial records, it compares favorably with the system in vogue in England.

The Royal Institution, a fine structure of the Grecian Doric order, surmounted by a colossal statue of the Queen, executed in stone by Sir John Steell, furnishes official accommodation for the Board of Trustees for Manufactures, and the Board of Fishery, and also for the School of Art and Statue Gallery of the Royal Institution.

The National Museum of Antiquities claims special attention. The Society of Antiquaries of Scotland was

founded in the year 1780, by a body of noblemen and gentlemen, who held their first meetings at the house of the Earl of Buchan; and almost immediately after its foundation they devoted themselves to the formation of an Archæological Museum. Archæological investigations, moreover, have now come to occupy a no less important relation to the researches of science than to the study of history; and in many of the capitals of Europe similar collections are promoted as objects of national importance. Negotiations were accordingly entered into with the government in 1849, and subsequent years, which resulted in the appropriation of the galleries in the Royal Institution, formerly devoted to the exhibitions of the Royal Scottish Academy, to the reception of the collections of the Society of Antiquaries of Scotland as a National Museum of Antiquities.

The Royal Society of Edinburgh was incorporated by royal charter in 1783, for the encouragement of philosophical inquiry and scientific research. Its extensive library and other collections are accommodated in the apartments occupied by it in the Royal Institution buildings, and its proceedings and transactions are now voluminous, and embody many important scientific papers.

The Royal Scottish Academy of Painting, Sculpture, and Architecture, was instituted in 1826, and incorporated by royal charter in 1838, on the model of the Royal Academy of London.

The University of Edinburgh was founded in 1582, by a royal charter granted by King James VI., and its rights, immunities, and privileges have been remodeled, ratified, and extended at various subsequent periods. In 1621, an Act of the Scottish Parliament ratified to the University of Edinburgh all rights and privileges enjoyed by other universities in the kingdom, and those were renewed under fresh guarantees in the Treaty of Union between England and Scotland, and in the Act of Security. Important changes have since been made on the constitution of the university by an Act of the British Parliament passed in 1858. But while the college, as such, bears the name of the College of King James, or King's College, and James VI. is spoken of as its founder, it originated in the liberality of the citizens of Edinburgh.

The Royal Observatory. The Calton Hill constitutes an important adjunct to the university. The astronomer royal for Scotland holds along with that office the professorship of practical astronomy.

One other important institution of practical instruction, in intimate connection with the university, is the Museum of Science and Art, situated immediately to the west of the university building, and in direct communication with it.

The museum and lecture rooms of the *Royal College of Surgeons* are accommodated in a handsome classical building in Nicolson Street, in the immediate vicinity of the university buildings. The College of Surgeons is an ancient corporate body, with a charter of the year 1505, and exercises the powers of instructing in surgery and of giving degrees.

Royal College of Physicians. The Royal College of Physicians is another learned corporate body, organized as such, with special privileges by a charter of incorporation granted to them by Charles II., in 1681. One of the proceedings consequent on the disruption of the Church of Scotland, in 1843, and the formation of the Free Church, was the establishment of New College, at Edinburgh, in connection with that Church. As originally projected, it was designed to include scientific and literary as well as theological chairs. Since then, however, this and the other colleges of the Free Church of Scotland, established at Aberdeen and Glasgow, have

assumed the more limited character of purely theological colleges—though in that of Edinburgh a chair of natural science is still retained.

The United Presbyterian Church has also its theological hall for the training of its ministers. The building hitherto occupied for the accommodation of the students, and also for the meetings of its church courts, is situated in Queen Street; but in September, 1877, the New Edinburgh Theater, in Castle Terrace, was purchased with the view of being converted to those uses.

Next door to the United Presbyterian premises in Queen Street is the Philosophical Institution, of which Mr. Thomas Carlyle was president. The lending library of this institution is extensive and valuable, and its annual winter courses of lectures are of a high character, and command great popular interest.

The public seminaries of Edinburgh, including the hospitals and other charitable foundations chiefly directed to the training and education of youth, are upon a very liberal scale. The High School of the burgh dates its existence from an early period in the sixteenth century. The Burgh Record, under date March 12, 1554, contains an order for the building of the grammar school on the east side of the Kirk of Field Wynd. At a later date, and down to the present century, it occupied the site of the Blackfriars' monastery founded by Alexander II., in 1230. But in the year 1825, the foundation stone was laid of the beautiful classical building which now occupies a prominent site on the southern slope of the Calton Hill.

Foremost among the charitable foundations for the education and training of youth is George Heriot's Hospital, founded by the jeweler of James VI., of Scotland and I. of England, who at his death, in 1624, left his estate in trust to the magistrates and ministers of Edinburgh for the maintenance and education of poor fatherless sons of freemen of the city. The building erected for the purposes of the charity is a noble quadrangular edifice, enriched with the elaborate details of the transitional style of domestic architecture of the earlier Stuart kings of England. It occupies a commanding site on the summit of a ridge known, of old, as the High Riggs, lying between the Grassmarket and the Meadows, and forms a striking feature in the view of the city from various points. One hundred and eighty boys are maintained on the foundation, 120 resident, and sixty non-resident. Those among them who give proof of diligence and ability are afterward maintained during a full course of four years at the university; and those who are apprenticed to trades are also provided with funds for five years, amounting in all to £50 sterling, with an additional £5 on proof of good behavior at the close.

The popular character of Heriot's Hospital, and the effective architecture of its building, have largely influenced the disposition of later charitable bequests in Edinburgh, somewhat to the detriment of the university. Following the example of the jeweler of King James, successive benefactors have founded George Watson's Hospital, Merchant Maiden Hospital, the Trades' Maiden Hospital, the Orphans', John Watson's, Donaldson's, and Stewart's Hospitals—all more or less modeled on the original foundation. Several of their buildings are also possessed of considerable architectural beauty, foremost among which is Donaldson's Hospital, the founder of which amassed a large fortune as a printer, and bequeathed nearly the whole of it in trust for the erection and endowment of a hospital for the maintenance of poor boys and girls. The trustees have taken advantage of the liberty of choice permissible under such terms to select one-half of the children admitted to the hospital from the class of the deaf and dumb. The

building has accommodation for 300 children. In 1877 it contained 214, of whom 120 were boys, and 94 girls. Of those 70 of the former, and 45 of the latter were deaf and dumb. Experience has thus far tended to show that the constant intercourse between the deaf mutes and their more fortunate companions exercises a beneficial influence on both.

Among the public charities of the city the Trinity Hospital, no longer maintained as a hospital with resident pensioners, now expends its income in pensions of from £10 to £20, to 172 poor burgesses, their wives, or children, not under the age of fifty years. The benevolent branch of the Gillespie's Hospital endowment is similarly administered. The Chalmers' Hospital, founded by George Chalmers, in 1836, destined for the reception of the sick and hurt, stands on the southern slope of Lauriston, overlooking the Meadows, and at no great distance from the New Royal Infirmary, to which it is a useful adjunct. In addition to those, it may suffice to name the Convalescent House—where in a pleasant country home near Corstorphine, the convalescents of the Infirmary are transferred from the surgical or fever wards of that hospital to healthful fresh air—the Royal Hospital for Sick Children, the Home for Crippled Children, the Hospital for Incurables, the Royal Maternity Hospital, along with other kindred institutions. The Royal Asylum for the Insane is at Morningside, on the southern outskirts of the city; and the Royal Blind Asylum, and the Deaf and Dumb Benevolent Society, each provide for the special classes indicated by their names.

The different city prisons are grouped together on the southern terrace of the Calton Hill, styled, of old, the Dow Craig, so as to form a very striking feature in the general view of the city from various points.

The buildings set apart as places of worship by the various denominations include thirty belonging to the Church of Scotland, twenty-nine to the Free Church, twenty-three to the United Presbyterian Church, fourteen to the Episcopal Church, and about thirty others to different religious denominations, including a Jewish synagogue.

Monuments.—The monuments and statues which adorn the city are of a peculiar character, and contribute to the singular aspect which Edinburgh presents to the eye of a stranger. The fame of Sir George Mackenzie, David Hume, Dugald Stewart, Playfair, Burns and Scott is commemorated in the case of each by an effective monumental structure dedicated to his memory. Of these the most remarkable is the monument erected by public subscription in memory of Sir Walter Scott, which stands in the eastern division of the Princess Street Gardens. The design, which was furnished by a young architect, Mr. G. W. Kemp, is that of a spiral Gothic cross, of great elegance both in outline and in details. A marble statue of Scott, by Sir John Steell, is placed under the central canopy; and the principal niches are occupied by figures of characters in Scott's writings. The Nelson monument, a lofty castellated turret which crowns the highest cliff of the Calton Hill, though of questionable architectural taste, is a striking feature in the general view of the city; and the Melville monument, a graceful and well-proportioned column 136 feet in height, surmounted by a colossal statue of Viscount Melville, first lord of the admiralty under Pitt, rises from the center of Andrew Square, and terminates the eastern vista of George Street, with a reproduction, in its proportions and general outline, of the celebrated Trajan column at Rome. Distant half a mile from this, at the west end of George Street, Charlotte Square furnishes a corresponding site for the monument of Prince Albert, from the design of Sir John Steell. A central pedestal,

which sustains the equestrian statue of the Prince Consort, has at each of the four angles at its base a group of figures representing different classes of the community paying honor to him; and bas-reliefs, executed, like the statues, in bronze, illustrate characteristic incidents in the Prince's career. George Street is further adorned at the intersection of two of the intermediate streets between St. Andrew and Charlotte Squares, with colossal bronze statues by Chantry of George IV. and Pitt. The beautiful garden terrace of Princes Street, on which the Scott monument stands, also affords appropriate sites for the statues of Allan Ramsay, John Wilson and other distinguished Scotchmen; at other prominent points in the Old and New Towns are equestrian statues of Charles II., the Duke of Wellington, and John, fourth earl of Hopetoun; and also statues of the Duke of York, Lord Melville, etc. The monument to the poet Burns, erected on a prominent site on the southern terrace of the Calton Hill, is in the style of a Greek peripteral temple inclosing a cella designed to form the shrine of a fine marble statue of the poet executed by Flaxman. But it proved to be too confined to afford a satisfactory view of the statue. This has accordingly been replaced by a bust from the chisel of Brodie; and the statue, after being placed for a time in the university library, now forms a prominent feature among the works of sculpture in the National Gallery.

Manufactures.—The principal manufactures may be classed under the following respective heads:—(1) Printing, lithographing, engraving, bookbinding and type-founding; (2) brewing, distilling, coopering, and manufacture of aerated water; (3) furniture work, paper-hanging and coach-building; (4) india-rubber work; (5) machinery and brass-founding; (6) tanning; (7) glasswork; (8) confectionery.

The city is supplied with water from various extensive reservoirs formed in the valleys of the Logan Water, the Bavelow Burn, and the North Esk, in the Pentland Hills lying to the south of the city.

The population in 1889 is estimated at 250,000.

EDMUND, St., (Edmund Rich), Archbishop of Canterbury, was born about the close of the twelfth century, at Abingdon, then the seat of a great Benedictine convent. The story of Edmund's birth and early years is strewn with marvel and miracle. Trained by his mother, a rigorous ascetic, he caught her ascetic spirit, and became a willing imitator of her self-tormenting ways. At the age of twelve he was sent to a school at Oxford, where he studied diligently, but continued ascetic exercises. Naturally susceptible in a high degree to the charm of beauty, he nevertheless vowed a vow of celibacy, and espoused himself to the Blessed Virgin Mary. At Oxford he was prostrated by a brain fever; his mother attended him, and by her desire he received the clerical tonsure. Shortly after, his father apparently being dead, he was sent to Paris to study at the university. He was called home to attend his mother on her death-bed; and during the next twelve months he lived in retirement in the convent of Merton, in Surrey. He then returned to Oxford, and once took an honorable place among the teachers of the university, which he retained for some years. He is distinguished as one of the scholars who introduced the study of Aristotle; and he heartily cooperated with those who were striving to recover for Oxford the popularity and prosperity as a place of study which it had recently lost, in consequence of a disturbance (1209) between town and gown, and the migration of students and masters in very large numbers. Edmund ultimately resolved to devote himself to theology, was ordained priest, and took his degree in divinity. About 1222 he was appointed treasurer of Salisbury Cathedral, and in this office, which he held

about eleven years, and to which the prebend of Calne was attached, he endeared himself alike to rich and poor. In 1227 Doctor Edmund was one of the preachers of the sixth crusade. In 1233 he was elected to the vacant primacy. Three elections had previously been made by the chapter, which the Pope for various reasons had refused to confirm; and this, the fourth, was made by the Pope's suggestion, as a compromise acceptable to "Pope, king, and monks," says Fuller, "three cords seldom twisted in the same cable." The *pallium* was sent to England without waiting for the decision of the chapter. The position of the primate was at that time one of peculiar difficulty, and it was with unfeigned reluctance that Edmund accepted it—feeling, says Lingard, "that the timidity of his conscience would not suffer him to acquiesce in the disorders of the age, and that the gentleness of his temper did not fit him for the stern office of a reformer." The new archbishop attached himself and steadfastly adhered to the national party, whose great object was to insure the independence of the kingdom, the maintenance of the Great Charter, and the exclusion of foreigners from civil and ecclesiastical offices. Early in 1235, before his consecration, he convened a council at Westminster, by which a remonstrance was addressed to the king, requiring him, on pain of censures of the church, to dismiss his foreign councilors, especially Peter des Roches, Bishop of Winchester, through whose influence the strongholds of the kingdom were then in the hands of foreign mercenaries. The consecration of the archbishop was celebrated at Canterbury on April 2, 1234, and the king was present with all his court. One week later the primate held a second council, and was commissioned by it to threaten the king with excommunication if he did not comply with the terms of the former council.

This measure was effectual. The archbishop was then sent into Wales to negotiate a peace with the Prince Llewelyn. In May he held a council at Gloucester, and here was accomplished a temporary reconciliation between the king and the people. In January, 1236, the primate had the costly privilege of a royal visit, Henry III. going to Canterbury to await the coming of his bride-elect, Eleanor of Provence; and on the fourteenth the marriage ceremony was performed by the archbishop. A few days later he officiated at the coronation of the queen. But the hopeless divergence of aims between the king and the archbishop, and the inflexible courage and decision of the latter, induced Henry to apply secretly to the Pope, Gregory IX., to send a legate to reside in England, whose authority might nullify that of the archbishop. Meanwhile, the latter issued, in 1236, his constitutions, which are of no little interest on account of the indications they furnish of the state of the church and of general society. The picture is not a flattering one. In 1237, arrived the legate, Cardinal Otho, who at once won his way into the royal favor. In November he held a council at St. Paul's, but failed to carry his main points against the opposition of the clergy. He stood high, however, with the king, and used or abused his prerogatives for effecting his own purposes. Archbishop Edmund now found himself in opposition to both the King and the Pope; and his position was rendered still more difficult by his excommunication of Simon de Montfort and his bride Eleanor, sister of the King, whose marriage after having taken a vow of perpetual widowhood he felt bound to condemn. In 1238, with a view of obtaining the support of the Pope for his project of monastic reform, Edmund went to Rome. But in this mission he failed. Not only was his purpose frustrated, but he was treated with marked insult by the Pope; and he returned to England sad at heart and

burdened with pecuniary difficulties. He soon found that he was reduced to a cipher; he saw the Papal exactions continually growing—"vexed," says Fuller, "at the polling and peeling of the English people"—and saw that the legate's great object was to crush him. In 1220, therefore, he left England, and took up his abode at the Abbey of Pontigny, in France, where Thomas Becket and Stephen Langton had previously found an asylum. At his landing he was met by the Queen of France, who brought her sons, among them (St.) Louis, to receive his blessing. His health was now broken down, and he "sighed out the remainder of his life" in quiet retirement, broken only by occasional preaching. Becoming weaker and weaker, he removed, for the sake of a better climate, to the Priory of Soissy, and there he died, November 16, 1240. His tomb, within a year, began to be famous for miracles; and in 1246, after much resistance on the part of the Pope, the Archbishop, a staunch foe of Papal extortions, was canonized. He left a work entitled *Speculum Ecclesie*, which he appears to have completed at Pontigny.

EDMUND, or EADMUND, the last of the kings of East Anglia, was born in 840. He was chosen by Offa as his successor when that king resigned and retired as a penitent to Rome. "The just and the holy man"—so Simon Durham describes Edmund—began his reign over the East Angles in 855, and ruled peacefully and uneventfully till his kingdom was invaded by the Danes in 870, when in a battle with Ingvar, he was defeated and taken prisoner. The Anglo-Saxon Chronicle says: "The same winter King Edmund fought against them, and the Danes got the victory and slew the king, and subdued all the land, and destroyed all the ministers which they came to." Abbo of Fleury, who writes a life of Edmund, relates the story of his death on the authority of Dunstan, who heard it from the lips of Edmund's sword-bearer. The Danes sent messengers to Edmund, who was dwelling at Hagilsdun (near the present Hoxne), upon the River Waveney, offering to allow him to reign under them on condition that he abjured his religion and divided with them his treasures. Edmund refused these conditions, and being taken prisoner, was bound to a tree, and, after being scourged with whips and pierced with arrows, was finally beheaded.

EDMUND, or EADMUND I. (ATHELING) (922-946), king of the Mercians and West Saxons, was the son of Edward the Elder, and succeeded his brother Athelstan in 941, being then, it is said, only eighteen years of age, but having already gained the esteem of the people by his courage shown three years before at the battle of Brunanburh. When he succeeded his famous brother, the Northumbrians, judging the opportunity favorable, brought over Anlaf from Ireland, and set him up as their king. The Danes of the kingdom joined them, and the result of the campaign was that Edmund was compelled to make a treaty, by which he ceded a large portion of his territory to his enemy. Two years afterward, however, on the death of Anlaf, he not only freed his kingdom, but also subdued the Britons of Cumbria or Cumberland, and bestowed their lands on Malcolm I. of Scotland, on condition of his coöperating with him in military service. On May 26, 946, an outlaw named Leof had slipped into the banqueting-hall of Edmund, who was celebrating the festival of St. Augustine at Pucklechurch in Gloucester, and the king in sudden anger, or because he suspected his designs, endeavored to remove him, whereupon the outlaw plunged a dagger into his bosom and killed him.

EDMUND, or EADMUND II. (989-1016), son of Ethelred, and the last of the line of West Saxon kings, called on account of his boldness and great strength

Ironsides, was on the death of Ethelred the Unready, in April, 1016, proclaimed king by the citizens of London and such of the Witan as were in the city. At that very time Canute the Dane was preparing an expedition against London, and he was proclaimed king by the Witan of England which met at Southampton. In command of a magnificent fleet he anchored before London, and by cutting a ditch round that part of the city not washed by the Thames, completely surrounded it; but the citizens, fighting with great valor, repulsed all his attacks. Meanwhile Edmund was acknowledged by the West Saxons, who flocked from every quarter to his standard; and determining to make a diversion in favor of London, he met and defeated the enemy at Pen, near Gillingham, in Dorsetshire. Canute was forced to raise the siege of London, and encountering Edmund at Sceaorstan, in Wilts, would have been signally defeated, had not the traitor ealdorman Edric raised the head of a fallen Thane which resembled that of the king, and called to the Saxons to flee, for their king was dead. Edmund, who was on the top of a hill, saved his subjects from flight by taking off his visor and showing his countenance; but from the disorder into which they had been thrown by the untoward incident they were unable to follow up their victory. Canute retained possession of the field of battle, but stole away during the night and resumed the siege of London. Afterward the Danes were defeated at Brentford on the Thames, and at Otford in Kent, and fled to the Isle of Sheppey; but being recruited, they met Edmund at Assandun (Ashdown, in Essex), where a battle was fought which virtually decided the fate of the West Saxon kings. Through a second act of treachery on the part of Edric, who fled at the decisive moment of the battle, with the portion of the army that he commanded, the Saxons were signally defeated, and their chief nobles left dead on the field. Edmund, undaunted by his great losses, wished still to continue the struggle, but Edric and the Witan persuaded him to be reconciled to Canute, and to consent to a division of the kingdom. Edmund retained London and all England south of the Thames, together with East Anglia and Essex, Canute taking possession of the other and larger portion. Edmund died on November 30th of the same year, some affirm by the hand of Edric. He was buried in the great minster of Glastonbury, and on his death Canute became sole king of England.

EDOM. See IDUMEA.

EDRISI, IDRISI, or ALDRISI, the most eminent of the Arabian geographers, flourished in the twelfth century. The various parts of his life afford subjects of controversy rather than of precise information.

His work has appeared under various titles. The first and fullest seems to have been, *The Going out of a Curious Man to Explore the Regions of the Globe, its Provinces, Islands, Cities, and their Dimensions and Situation*. It contains a full description of the whole world, as far as it was known to the author, who is said to have received reports from a number of learned explorers despatched expressly to collect information for his use. The world is divided into seven *climates*, commencing at the equinoctial line, and extending northward to the limit at which the earth was supposed to be rendered uninhabitable by cold. Each climate is then divided by perpendicular lines into eleven equal parts, beginning with the western coast of Africa and ending with the eastern coast of Asia. The whole world is thus formed into seventy-seven equal square compartments. The geographer begins with the first part of the first climate, including the western part of Central Africa, and proceeds eastward through the different divisions of this climate till he finds its termination in the

Sea of China. He then returns to the first part of the second climate, and so proceeds till he reaches the eleventh part of the seventh climate, which terminates in the northeastern extremity of Asia. The inconveniences of the arrangement are obvious; but the author appears to have been writing an illustrative treatise to accompany an actual representation of the world which he had engraved on a silver disk or possibly a silver globe.

EDUCATION. The Greeks were the first to develop a science of education distinct from ecclesiastical training. They divided their subjects of study into music and gymnastics, the one comprising all mental, the other all physical training. Music was at first little more than the study of the art of expression. But the range of intellectual education which had been developed by distinguished musical teachers was further widened by the Sophists, until it received a new stimulus and direction from the work of Socrates. Who can forget the picture left us by Plato of the Athenian palaestra, in which Socrates was sure to find his most ready listeners and his most ardent disciples? In the intervals of running, wrestling, or the bath, the young Phædrus or Theætetus discoursed with the philosophers who had come to watch them, on the good, the beautiful, and the true. The lowest efforts of their teachers were to fit them to maintain any view they might adopt with acuteness, elegance, readiness, and good taste — their highest efforts to stimulate a craving for the knowledge of the unknowable, to rouse a dissatisfaction with received opinions, and to excite a curiosity which grew stronger with the revelation of each successive mystery. Plato is the author of the first systematic treatise on education. The Romans understood no systematic training except in oratory. In their eyes every citizen was a born commander, and they knew of no science of government and political economy. Cicero speaks slightly even of jurisprudence. Any one, he says, can make himself a jurisconsult in a week, but an orator is the production of a lifetime. No statement can be less true than that a perfect orator is a perfect man. But wisdom and philanthropy broke even through that barrier, and the training which Quintilian expounds to us as intended only for the public speaker would, in the language of Milton, fit a man to perform justly, wisely, and magnanimously all the offices, both public and private, of peace and war.

Such are the ideas which the old world has left us. On one side man beautiful, active, clever, receptive, emotional, quick to feel, to show his feeling, to argue, to refine; greedy of the pleasures of the world, perhaps a little neglectful of its duties, fearing restraint as an unjust stinting of the bounty of nature, inquiring eagerly into every secret, strongly attached to the things of this life, but elevated by an unabated striving after the highest ideal; setting no value but upon faultless abstractions, and seeing reality only in heaven, on earth mere shadows, phantoms, and copies of the unseen. On the other side man practical, energetic, eloquent, tinged but not imbued with philosophy, trained to spare neither himself nor others, reading and thinking only with an apology; best engaged in defending a political principle, in maintaining with gravity and solemnity the conservation of ancient freedom, in leading armies through unexplored deserts, establishing roads, fortresses, settlements, the results of conquest, or in ordering and superintending the slow, certain, and utter annihilation of some enemy of Rome. Has the modern world ever surpassed their type? Can we in the present day produce anything by education except by combining, blending, and modifying the self-culture of the Greek or the self-sacrifice of the Roman?

The literary education of the earliest generation of Christians was obtained in the pagan schools, in those great imperial academies which existed even down to the fifth century, which flourished in Europe, Asia, and Africa, and attained perhaps their highest development and efficiency in Gaul. The first attempt to provide a special education for Christians was made at Alexandria, and is illustrated by the names of Clement and Origen. The later Latin fathers took a bolder stand, and rejected the suspicious aid of heathenism. Tertullian, Cyprian, and Jerome wished the antagonism between Christianity and Paganism to be recognized from the earliest years, and even Augustine condemned with harshness the culture to which he owed so much of his influence. The education of the Middle Ages was either that of the cloister or the castle. They stood in sharp contrast to each other. The object of the one was to form the young monk, of the other the young knight. We should indeed be ungrateful if we forgot the services of those illustrious monasteries, Monte Cassino, Fulda, or Tours, which kept alive the torch of learning throughout the Dark Ages, but it would be equally mistaken to attach an exaggerated importance to the teaching which they provided. Long hours were spent in the duties of the church, and in learning to take a part in elaborate and useless ceremonies. A most important part of the monastery was the writing room, where missals, psalters, and breviaries were copied and illuminated, and too often a masterpiece of classic literature was effaced to make room for a treatise of one of the Fathers or the sermon of an abbot. The discipline was hard; the rod ruled all with indiscriminating and impartial severity. How many generations have had to suffer for the floggings of those times! Hatred of learning, antagonism between the teacher and the taught, the belief that no training can be effectual which is not repulsive and distasteful, that no subject is proper for instruction which is acquired with ease and pleasure — all these idols of false education have their root and origin in monkish cruelty. The joy of human life would have been in danger of being stamped out if it had not been for the warmth and color of a young knight's boyhood. He was equally well broken in to obedience and hardship, but the obedience was the willing service of a mistress whom he loved, and the hardship the permission to share the dangers of a leader whom he emulated. The seven arts of monkish training were Grammar, Dialectics, Rhetoric, Music, Arithmetic, Geometry, Astronomy, which together formed the *trivium* and *quadrivium*, the seven years' course, the divisions of which have profoundly affected our modern training. The seven knightly accomplishments, as historians tell us, were to ride, to swim, to shoot with the bow, to box, to hawk, to play chess, and to make verses. The verses thus made were not in Latin, bald imitations of Ovid or Horace, whose pagan beauties were wrested into the service of religion, but sonnets, ballads, and canzonets in soft Provençal or melodious Italian. In nothing, perhaps, is the difference between these two forms of education more clearly shown than in their relations to women. A young monk was brought up to regard a woman as the worst among the many temptations of St. Antony. His life knew no domestic tenderness or affection. He was surrounded and cared for by celibates, to be himself a celibate. A page was trained to receive his best reward and his worst punishment from the smile or frown of the lady of the castle, and as he grew to manhood, to cherish an absorbing passion as the strongest stimulus to a noble life, and the contemplation of female virtue, as embodied in an Isokle or a Beatrice, as the truest earnest of future immortality.

Both these forms of education disappeared before the

Renaissance and the Reformation. But we must not suppose that no efforts were made to improve upon the narrowness of the schoolmen or the idleness of chivalry. The schools of Charles the Great have lately been investigated by Mr. Mullinger, but we do not find that they materially advanced the science of education. Vincent of Beauvais has left us a very complete treatise on education, written about the year 1245. He was the friend and counsellor of St. Louis, and we may discern his influence in the instructions which were left by that sainted king for the guidance of his son and daughter through life. The end of this period was marked by the rise of universities. Bologna devoted itself to law, and numbered 12,000 students at the end of the twelfth century. Salerno adopted as its special province the study of medicine, and Paris was thronged with students from all parts of Europe, who were anxious to devote themselves to a theology which passed by indefinite gradations into philosophy. The fourteenth and fifteenth centuries witnessed the rise of universities and academies in almost every portion of Europe. The *Epistola Obscurorum Virorum*, the wittiest squib of the Middle Ages, which was so true and so subtle in its satire that it was hailed as a blow struck in defense of the ancient learning, consists in great part of the lamentations of the brethren of Deventer over the new age which they could not either comprehend or withstand. The education of the Renaissance is best represented by the name of Erasmus, that of the Reformation by the names of Luther and Melancthon. We have no space to give an account of that marvelous resurrection of the mind and spirit of Europe when touched by the dead hand of an extinct civilization. The history of the revival of letters belongs rather to the general history of literature than to that of education. For our instruction it is better to have recourse to the pages of Erasmus. He has written the most minute account of his method of teaching. The child must be formed into a good Greek and Latin scholar and a pious man. He fully grasps the truth that improvement must be natural and gradual. Letters are to be taught playing. The rules of grammar are to be few and short. Every means of arousing interest in the work is to be fully employed. Erasmus is no Ciceroonian. Latin is to be taught so as to be of use—a living language adapted to modern wants. Children should learn an art—painting, sculpture, or architecture. Idleness is above all things to be avoided. The education of girls is as necessary and important as that of boys. Much depends upon home influence; obedience must be strict, but not too severe. We must take account of individual peculiarities, and not force children into cloisters against their will. We shall obtain the best result by following nature. It is easy to see what a contrast this scheme presented to the monkish training—to the routine of useless technicalities enforced amid the shouts of teachers and the lamentations of the taught.

Still, this culture was but for the few. Luther brought the schoolmaster into the cottage, and laid the foundations of the system which is the chief honor and strength of modern Germany, a system by which the child of the humblest peasant, by slow but certain gradations, receives the best education which the country can afford. The precepts of Luther found their way into the hearts of his countrymen in short, pithy sentences, like the sayings of Poor Richard. The purification and widening of education went hand in hand with the purification of religion, and these claims to affection are indissolubly united in the minds of his countrymen. Melancthon, from his editions of school books and his practical labors in education, earned the title of *Præceptor Germaniæ*. He appreciated the importance of Greek, the terror of the obscurantists,

and is the author of a Greek grammar. He wrote elementary books on each department of the *trivium*—grammar, dialectic, and rhetoric. He made some way with the studies of the *quadrivium*, and wrote *Initia Doctrinæ Physicæ*, a primer of physical science. He lectured at the University of Wittenberg, and for ten years, from 1519 to 1529, kept a *schola privata* in his own house. Horace was his favorite classic. His pupils were taught to learn the whole of it by heart, ten lines at a time.

We now come to the names of three theoretical and practical teachers who have exercised and are still exercising a profound effect over education. The so-called Latin school, the parent of the gymnasium and the lycée, had spread all over Europe, and was especially flourishing in Germany. The programmes and time tables in use in these establishments have come down to us, and we possess notices of the lives and labors of many of the earliest teachers. It is not difficult to trace a picture of the education which the Reformation offered to the middle classes of Europe. Ample materials exist in German histories of education. We must confine ourselves to those moments which were of vital influence in the development of the science. One school stands preëminently before the rest, situated in that border city on the debatable land between France and Germany, which has known how to combine and reconcile the peculiarities of French and German culture. Strasburg, besides a school of theology which unites the depth of Germany to the clearness and vivacity of France, educated the gilded youth of the sixteenth century under Sturm, as it trained the statesmen and diplomatists of the eighteenth under Koch. John Sturm of Strasburg was the friend of Ascham, the author of the *Scholemaster*, and the tutor of Queen Elizabeth. It was Ascham who found Lady Jane Grey alone in her room at Bradgate bending her neck over the page of Plato when all the rest of her family were following the chase. Sturm was the first great head-master, the progenitor of Busbys if not of Arnolds. He lived and worked till the age of eighty-two. He was a friend of all the most distinguished men of his age, the chosen representative of the Protestant cause in Europe, the ambassador of foreign powers. He was believed to be better informed than any man of his time of the complications of foreign politics. Rarely did an envoy pass from France to Germany without turning aside to profit by his experience. But the chief energies of his life were devoted to teaching. He drew his scholars from the whole of Europe; Portugal, Poland, England sent their contingent to his halls. In 1578 his school numbered several thousand students; he supplied at once the place of the cloister and the castle. What he most insisted upon was the teaching of Latin, not the conversational *lingua franca* of Erasmus, but pure, elegant Ciceronian Latinity. He may be called the introducer of scholarship into the schools, a scholarship which as yet took little account of Greek. His pupils would write elegant letters, deliver elegant Latin speeches, be familiar, if not with the thoughts, at least with the language of the ancients, would be scholars in order that they might be gentlemen.

Wolfgang Ratke of Ratischius was born in Holstein in 1571. He anticipated some of the best improvements in the method of teaching which have been made in modern times. He was like many of those who have tried to improve existing methods in advance of his age, and he was rewarded for his labors at Augsburg, Weimar, and Köthen by persecution and imprisonment. Can we wonder that education has improved so slowly when so much pains have been taken to silence and extinguish those who have devoted themselves to its im-

provement? His chief rules were as follows: 1. Begin everything with prayer. 2. Do everything in order, following the course of nature. 3. One thing at a time. 4. Often repeat the same thing. 5. Teach everything first in the mother tongue. 6. Proceed from the mother tongue to other languages. 7. Teach without compulsion. Do not beat children to make them learn. Pupils must love their masters, not hate them. Nothing should be learned by heart. Sufficient time should be given to play and recreation. Learn one thing before going on to another. Do not teach for two hours consecutively. 8. Uniformity in teaching, also in school books, especially grammars, which may with advantage be made comparative. 9. Teach a thing first, and then the reason of it. Give no rules before you have given the examples. Teach no language out of the grammar, but out of authors. 10. Let everything be taught by induction and experiment. Most of these precepts are accepted by all good teachers in the present day; all of them are full of wisdom. Unfortunately their author saw the faults of the teaching of his time more clearly than the means to remove them, and he was more successful in forming precepts than in carrying them out. Notwithstanding these drawbacks, he deserves an honorable place among the forerunners of a rational education.

John Amos Comenius was the antithesis to Sturm, and a greater man than Ratke. Born a Moravian, he passed a wandering life, among the troubles of the Thirty Years' War, in poverty and obscurity. But his ideas were accepted by the most advanced thinkers of the age, notably in many respects by Milton, and by Oxenstiern, the chancellor of Sweden. His school books were spread throughout Europe.

Comenius included in his course the teaching of the mother tongue, singing, economy, politics, the history of the world, physical geography, and a knowledge of arts and handicrafts. But the principle on which he most insisted, which forms the special point of his teaching, and in which he is followed by Milton, is that the teaching of words and things must go together hand in hand. When we consider how much time is spent over new languages, what waste of energy is lavished on mere preparation, how it takes so long to lay a foundation that there is no time to rear a building upon it, we must conclude that it is in the acceptance and development of this principle that the improvement of education will, in the future, consist. Any one who attempts to inculcate this great reform will find that its first principles are contained in the writings of Comenius. But this is not the whole of his claim upon our gratitude. He was one of the first advocates of the teaching of science in schools. His kindness, gentleness, and sympathy make him the forerunner of Pestalozzi. His general principles of education would not sound strange in the treatise of Herbert Spencer.

It may be imagined that, by this organization both Catholics and Protestants were apt to degenerate into pedantry, both in name and purpose. The schoolmaster had a great deal too much the best of it. The Latin school was tabulated and organized until every half hour of a boy's time was occupied; the Jesuit school took possession of the pupil, body and soul. It was, therefore, to be expected that a stand should be made for common sense in the direction of practice rather than theory, of wisdom instead of learning. Montaigne has left us the most delightful utterances about education. He says that the faults of the education of his day consist in over-estimating the intellect and rejecting morality, in exaggerating memory and depreciating useful knowledge. He recommends a tutor who should draw out the pupil's own power and origin-

ality, to teach how to live well and to die well, to enforce a lesson by practice, to put the mother tongue before foreign tongues, to teach all manly exercises, to educate the perfect man. Away with force and compulsion, with severity and the rod. John Locke, more than a hundred years afterward, made a more powerful and systematic attack upon useless knowledge. His theory of the origin of ideas led him to assign great importance to education, while his knowledge of the operations of the human mind lends a special value to his advice. His treatise has received in England more attention than it deserves, partly because we have so few books written upon the subject on which he treats.

Far more important in the literature of this subject than the treatise of Locke is the *Treatise of Education* by Milton, "the few observations," as he tells us, "which flowered off, and are, as it were, the burnishings of many studious and contemplative years spent in the search for civil and religious knowledge." This essay is addressed to Samuel Hartlib, a great friend of Comenius, and probably refers to a project of establishing a university in London.

No history of education would be complete without the name of August Hermann Francke, the founder of the school of Pietists, and of a number of institutions which now form almost a suburb in the town of Halle to which his labors were devoted. Francke's great merit is to have left us a model of institutions by which children of all ranks may receive an education to fit them for any position in life. The Franckesche Stiftungen are still, next to the university, the center of the intellectual life of Halle, and the different schools which they contain give instruction to 3,500 children.

The Protestant schools were now the best in Europe, and the monkish institutions were left to decay. Catholics would have remained behind in the race if it had not been for the Jesuits. Ignatius Loyola gave this direction to the order which he founded, and the programme of studies, which dates from the end of the sixteenth century, is in use, with certain modifications, in English Jesuit schools at the present day. It would be unfair to deny the merits of the education of the Jesuits. Bacon speaks of them in more than one passage as the revivers of this most important art. Descartes approved of their system; Chateaubriand regarded their suppression as a calamity to civilization and enlightenment. They were probably the first to bring the teacher into close connection with the taught. According to their ideal the teacher was neither inclosed in a cloister, secluded from his pupils, nor did he keep order by stamping, raving and flogging. He was encouraged to apply his mind and soul to the mind and soul of his pupil; to study the nature, the disposition, and parents of his scholars; to follow nature as far as possible, or rather to lie in wait for it and discover its weak points, and where it could be most easily attacked. Doubtless the Jesuits have shown a love, devotion, and self-sacrifice in education, which is worthy of the highest praise; no teacher who would compete with them can dare do less. On the other hand, they are open to grave accusation. Their watchful care degenerated into surveillance, which lay-schools have borrowed from them; their study of nature has led them to confession and direction. They have tracked out the soul to its recesses, that they might slay it there, and generate another in its place; they educated each mind according to its powers, that it might be a more subservient tool to their own purposes. They taught the accomplishments which the world loves, but their chief object was to amuse the mind and stifle inquiry; they encouraged Latin verses, because they were a convenient plaything on which powers might be exercised which could have been better employed in under-

standing and discussing higher subjects; they were the patrons of school plays, of public prizes, declamations, examinations, and other exhibitions, in which the parents were more considered than the boys; they regarded the claims of education, not as a desire to be encouraged, but as a demand to be played with and propitiated; they gave the best education of their time in order to acquire confidence, but they became the chief obstacle to the improvement of education; they did not care for enlightenment, but only for the influence which they could derive from a supposed regard for enlightenment. Whatever may have been the service of Jesuits in past times, we have little to hope for them in the improvement of education at present. Governments have, on the whole, acted wisely by checking and suppressing their colleges.

We now come to the book which has had more influence than any other on the education of later times. The *Émile* of Rousseau, was published in 1762. It produced an astounding effect throughout Europe. Those were days when the whole cultivated world vibrated to any touch of new philosophy. French had superseded Latin as the general medium of thought. French learning stood in the same relation to the rest of Europe as German learning does now; and any discovery of D'Alembert, Rousseau, or Maupertuis traveled with inconceivable speed from Versailles to Schönbrunn, from the Spree to the Neva. Kant in his distant home of Königsberg broke for one day through his habits—more regular than the town clock—and stayed at home to study the new revelation. The burden of Rousseau's message was nature, such a nature as never did and never will exist, but still a name for an ideal worthy of our struggles. He revolted against the false civilization which he saw around him; he was penetrated with sorrow at the shams of government and society, at the misery of the poor existing side by side with the heartlessness of the rich. The child should be the pupil of nature. He lays great stress on the earliest education. The first year of life is in every respect the most important. Nature must be closely followed. The child's tears are petitions which should be granted. The naughtiness of children comes from weakness; make the child strong and he will be good. Children's destructiveness is a form of activity. Do not be too anxious to make children talk; be satisfied with a small vocabulary. Lay aside all padded caps and baby jumpers. Let children learn to walk by learning that it hurts them to fall. Do not insist too much on the duty of obedience as on the necessity of submission to natural laws. Do not argue too much with children; educate the heart to wish for right actions; before all things study nature. The chief moral principle is *do no one harm*. It is, perhaps, strange that a book in many respects so wild and fantastic should have produced so great a practical effect. In pursuance of its precepts, children went about naked, were not allowed to read, and when they grew up wore the simplest clothes, and cared for little learning except the study of nature and Plutarch. The catastrophe of the French Revolution has made the importance of *Émile* less apparent to us. Much of the heroism of that time is doubtless due to the exaltation produced by the sweeping away of abuses, and the approach of a brighter age. But we must not forget that the first generation of *Émile* was just thirty years old in 1792; that many of the Girondins, the Marseillais, the soldiers and generals of Carnot and Napoleon had been bred in that hardy school.

The end of the eighteenth century saw a great development given to classical studies. The names of Cellarius, Gesner, Ernesti, and Heyne, are perhaps more celebrated as scholars than as schoolmasters. To them

we owe the great importance attached to the study of the classics, both on the Continent and in England. They brought into the schools the philology which F. A. Wolf had organized for the universities. Pestalozzi, on the other hand, was completely and entirely devoted to education. His greatest merit is that he set an example of absolute self-abnegation, that he lived with his pupils, played, starved, and suffered with them, and clung to their minds and hearts with an affectionate sympathy which revealed to him every minute difference of character and disposition. Pestalozzi was born at Zurich in 1746. His father died when he was young, and he was brought up by his mother. His earliest years were spent in schemes for improving the condition of the people. The death of his friend, Bluntschli, turned him from political schemes, and induced him to devote himself to education. He married at twenty-three, and bought a piece of waste land in Aargau, where he attempted the cultivation of madder. Pestalozzi knew nothing of business, and the plan failed. Before this he had opened his farm-house as a school; but in 1780 he had to give this up also. His first book published at this time was *The Evening Hours of a Hermit*, a series of aphorisms and reflections. This was followed by his masterpiece, *Leonard and Gertrude*, an account of the gradual reformation, first of a household, and then of a whole village, by the efforts of a good and devoted woman. It was read with avidity in Germany, and the name of Pestalozzi was rescued from obscurity. His attempts to follow up this first literary success were failures. The French invasion of Switzerland in 1798 brought into relief his truly heroic character. A number of children were left in Canton Unterwalden, on the shores of the Lake of Lucerne, without parents, home, food, or shelter. Pestalozzi collected a number of them into a deserted convent, and spent his energies in reclaiming them. "I was," he says, "from morning till evening, almost alone in their midst. Everything which was done for their body or soul proceeded from my hand. Every assistance, every help in time of need, every teaching which they received, came immediately from me. My hand lay in their hand, my eye rested on their eye, my tears flowed with theirs, and my laughter accompanied theirs. They were out of the world, they were out of Stanz; they were with me, and I was with them. Their soup was mine; their drink was mine. I had nothing; I had no housekeeping, no friend, no servants around me; I had them alone. Were they well I stood in their midst; were they ill, I was at their side. I kept in the middle of them. I was the last who went to bed at night, the first who rose in the morning. Even in bed I prayed and taught with them until they were asleep—they wished it to be so." Thus he passed the winter; but in June, 1799, the building was required by the French for a hospital, and the children were dispersed. We have dwelt especially on this episode of Pestalozzi's life, because in this devotion lay his strength. In 1801 he gave an exposition of his ideas on education in the book *How Gertrude Teaches her Children*. His method is to proceed from the easier to the more difficult; to begin with observation, to pass from observation to consciousness, from consciousness to speech.

Then come measuring, drawing, writing, numbers, and so reckoning. In 1799 he had been enabled to establish a school at Burgdorf, where he remained till 1804. In 1802 he went as deputy to Paris, and did his best to interest Napoleon in a scheme of national education; but the great conqueror said that he could not trouble himself about the alphabet. In 1805 he removed to Yverdon on the Lake of Neuchâtel, and for twenty years worked steadily at his task. He was visited by all who took interest in education—Talleyrand,

Capo d'Istria, and Madame de Stael. He was praised by Wilhelm von Humboldt and by Fichte. His pupils included Ramsauer, Delbrück, Blochmann, Carl Ritter, Fröbel, and Zeller. About 1815 dissensions broke out among the teachers of the school, and Pestalozzi's last ten years were chequered by weariness and sorrow. In 1825 he retired to Neuhof, the home of his youth; and after writing the adventures of his life, and his last work, the *Swan's Song*, he died in 1827. As he said himself, the real work of his life did not lie in Burgdorf or in Yverdon, the products rather of his weakness than of his strength. It lay in the principles of education which he practiced, the development of his observation, the training of the whole man, the sympathetic application of the teacher to the taught, of which he left an example in his six months' labors at Stanz. He showed what truth there was in the principles of Comenius and Rousseau, in the union of training with information, and the submissive following of nature; he has had the deepest effect on all branches of education since his time, and his influence is far from being exhausted.

The last English writers on education are Mr. Herbert Spencer and Mr. Alexander Bain, the study of whose writings will land us in those regions of pedagogics which have been most recently explored. In writing of intellectual education, he insists that we shall attain the best results by closely studying the development of the mind, and availing ourselves of the whole amount of force which nature puts at our disposal. The mind of every being is naturally active and vigorous; indeed it is never at rest. But for its healthy growth it must have something to work upon, and, therefore, the teacher must watch its movements with the most sympathetic care, in order to supply exactly that food which it requires at any particular time. In this way a much larger cycle of attainments can be compassed than by the adoption of any programme or curriculum, however carefully drawn up. It is no good to teach what is not remembered; the strength of memory depends on attention, and attention depends upon interest. To teach without interest is to work like Sisyphus and the Danaides. Arouse interest if you can, rather by high means than by low means.

Mr. Bain's writings on education are extremely valuable. Perhaps the most interesting part of them consists in his showing how what may be called the "correlation of forces in man" helps us to a right education. From this we learn that emotion may be transformed into intellect, that sensation may exhaust the brain as much as thought, and we may infer that the chief duty of a schoolmaster is to stimulate the powers of each brain under his charge to the fullest activity, and to apportion them in that ratio which will best conduce to the most complete and harmonious development of the individual.

It seems to follow from this sketch of the history of education that, in spite of the great advances which have been made of late years, the science of education is still far in advance of the art. Schoolmasters are still spending their best energies in teaching subjects which have been universally condemned by educational reformers for the last two hundred years. The education of every public school is a farrago of rules, principles, and customs derived from every age of teaching, from the most modern to the most remote. It is plain that the science and art of teaching will never be established on a firm basis until it is organized on the model of the sister art of medicine. We must pursue the patient methods of induction by which other sciences have reached the stature of maturity; we must discover some means of registering and tabulating re-

sults; we must invent a phraseology and nomenclature which will enable results to be accurately recorded; we must place education in its proper position among the sciences of observation. A philosopher who should succeed in doing this would be venerated by future ages as the creator of the art of teaching.

In English, though we have no investigators of the history of education, we have a fairly large literature on the subject, but it belongs almost exclusively to the United States. The great work of Henry Barnard, the *American Journal of Education*, in twenty-five vols., has valuable papers on almost every part of our subject, many of them translated from the German, but there are also original papers on our old English educational writers, and extracts from their works. This is by far the most valuable work in our language on the history of education.

EDWARD, or EDWARD I., king of the Anglo-Saxons, was the eldest son of Alfred the Great, and succeeded his father, by the voice of the Witan, October 26, 901. He was then about thirty years of age, and had already, in 893, distinguished himself by inflicting a disastrous defeat on the Danes at Farnham. His election to the throne was disputed by his cou in Ethelwold, who, leagu ing himself with the Danes of Northumbria, waged, with varying success, a civil war of four years' duration. It was brought to a close in 906 by Ethelwold's death in battle, when Edward concluded a peace with the East Anglians and the Northumbrians. The pacification was not, however, of a very satisfactory nature, and was not of long continuance, for in 910 Edward "sent out a force of West Saxons and Mercians, who greatly spoiled the army of the north," and in 911 the Danes, receiving large reinforcements from France, made repeated attacks on Wessex and Mercia. Against this common enemy Edward and his sister Ethelfleda, who became "Lady of Mercia" in 912, formed conjoint measures. Ethelfleda drove the Danes from Mercia, and, to secure her conquests, erected the fortresses of Bridgenorth, Stafford, Tamworth, and Warwick; while Edward, by adopting the same methods in East Anglia and Essex, gradually accomplished the complete subjugation of the Danes. On the death of Ethelfleda, in 922, he annexed Mercia to his own crown, and became King of all England south of the Humber. But this was not the whole result of his victories, for the Danes of Northumbria, the Welsh, the Scots, and the Britons of Strathclyde, either from dread of his power, or from desire for his protection, voluntarily chose him to be their "father and Lord." He died in 925.

EDWARD, or EDWARD II., surnamed the Martyr, an Anglo-Saxon king, succeeded his father Edgar, in 975, at the age of about thirteen years. He was the elder son of Edgar, and is said to have been recommended by him as his successor; but the party in the state opposed to the monks supported nevertheless the claims of his younger brother Ethelred, son of Elfrida, and only seven years of age. The influence of Dunstan was, however, sufficiently great to overbear all opposition, and in a somewhat summary fashion he presented Edward to the Witan at Winchester, and consecrated him king. During his short reign the only circumstances worthy of notice are the quarrels between the two parties in the state, and the rapid decline of the authority of Dunstan and the monks. The death of Edward, which occurred in 978, was the result of a base act of treachery on the part of Elfrida. He was returning exhausted from the chase at Wareham when he was lured to her residence, and was stabbed in the back while partaking of hospitality before her palace gate.

EDWARD, or EDWARD III., king of the Anglo-Saxons, surnamed, on account of his reputation for superior sanctity, the Confessor, was the son of Ethelred II. and Emma, daughter of Richard I. of Normandy, and was born at Islip, Oxfordshire, probably in 1004. On the election of Swend to the throne of England in 1013, Emma, with her husband and family took refuge in Normandy; and Edward, notwithstanding the marriage of Emma to Canute in 1017, continued to reside at the Norman court, until he was recalled to England by Hardicanute in 1041. Hardicanute died in 1042, and "before the king was buried, all folk chose Edward to be king at London;" but partly from his own unwillingness to accept the crown, and partly from the opposition of the Danes who came to England with Canute, his coronation did not take place till April, 1043. The chief agent in overcoming his scruples, and in quelling all murmurs of opposition against his election, was Godwin the West Saxon earl, whose influence was at that time paramount in England. The exact nature of the relations between Godwin and Edward has been the subject of considerable discussion; but the most probable view of the matter is that, until after the marriage of Edward to Edgitha, daughter of Godwin, in 1045, these were on the whole cordial and friendly, but that gradually the king's preference of Normans to Anglo-Saxons, his necessary friendship with Leofric of Mercia and Sward of Northumbria, and his growing dread of Godwin's ambitious character, led to misunderstanding and distrust. It was, probably, at the instigation of Godwin that Edward, on his accession to the throne, deprived his mother Emma of her possessions, and caused her to live in retirement in Winchester, and that he banished from the kingdom the chief Danish partisans who opposed his election. For the first eight years his reign was comparatively tranquil, the only circumstances worthy of mention being a threatened invasion by Norway, the ravages committed by pirates in Kent and Essex, and the outlawry of Sweyn, son of Godwin, for the seduction of the abbess of Leominster. In 1051, Eustace, Count of Boulogne, in endeavoring to quarter his followers on the town of Dover, was resisted by the burghers, and a quarrel ensuing, several Normans were slain. The king, on hearing Eustace's account of the affair, without further inquiry, commanded Godwin to chastise the town by military execution. Godwin demanded a trial; but the king, incited it is said by Robert, Archbishop of Canterbury, summoned a meeting of the Witan at Gloucester, not for the purpose of inquiring into the affair at Dover, but to pass judgment on Godwin for his contumacy. Ultimately, Godwin thought it prudent to leave the country and take refuge in Flanders. It was during his absence that William, Duke of Normandy, visited England; and if this prince did not then receive the promise of the crown from Edward, his ambition to possess it and his hopes of success were doubtless confirmed by his visit. There seems to have been general regret at Godwin's absence; and encouraged by the assurances he received from England, he gathered a fleet, and uniting with Harold, appeared in London. The king endeavored to oppose him, but was obliged to yield to the wishes of his subjects, and Godwin and his sons were reinstated in their possessions. When the father left England, Edgitha had been deprived of her property and sent to the royal abbey of Wherwell, but on his return she was restored to her former position. Godwin died in 1053, and after his death Harold attained to great influence, and virtually ruled the kingdom in the name of Edward. Toward the end of 1065 Edward's health began rapidly to fail. He had rebuilt the ancient abbey of Westminster, and his only wish was to be present at its con-

secration, which was to take place December 28th, but over-exertion on some previous festival days was too much for his remaining strength. His share in the ceremony had to be performed by deputy, and he died January 5, 1066.

EDWARD I., King of England, was the son of Henry III. of England, and of Eleanor, daughter of the Count of Provence, and was born at Westminster, June 16, 1239. In 1252 he was named governor of Gascony in room of Simon de Montfort, with whom Henry was dissatisfied; and in 1254, by his marriage with Eleanor, daughter of Alphonso X. of Castille, he secured to the English for a time undisputed possession of that province. At the battle of Lewes, May 13, 1264, Edward, by the impetuosity of his attack, at first defeated the barons with great slaughter, but by his too great rashness in pursuit failed to give the king proper support in another part of the field, and was thus the cause ultimately of the utter rout of the royal forces. He was taken prisoner, but escaping by a clever stratagem, he joined with the Earl of Gloucester, and inflicted a disastrous defeat on De Montfort and his sons at Evesham, August 3, 1265. In 1269, at the request of the Pope, he undertook a crusade to the Holy Land. He reached it in 1270, and in 1271 he captured Nazareth and massacred all the Turks found within its walls. In revenge, perhaps, for this act, an assassin, on June 12, 1272, stabbed him in three places with a poisoned arrow; but his vigorous constitution triumphed over his injuries and he completely recovered. In the same year his father died, and he was proclaimed king. He had arrived at Sicily when the news reached him, but instead of going direct to England, he crossed over to Italy, and thence into France, where in a tournament his followers quarreled with those of the Count of Chalons, and he slew the count in single combat. He landed in England, August 2, 1274, and was crowned on the 19th. In October of the same year he issued writs to inquire into the state or the realm, and the next year there were passed the laws called the Statutes of Westminster, which reformed many of the abuses of the feudal system, secured freedom from undue influence in the election of sheriffs and other justices, and threatened with penalties certain oppressive acts on the part of the barons. In 1267 he conquered Wales and caused Llewelyn to sue for peace; but in 1280, a Welsh war again broke out, which continued till the death of Llewelyn in 1282. Edward's plan to obtain money for the expenses of this war, by summoning for consultation in 1283 representatives of the shires, the boroughs, and the church, was the germ of the English House of Commons, although the first properly constituted Parliament did not meet till 1295. A less creditable method of raising money was the banishment, in 1280, of the Jews from England, on condition that the clergy and laity submitted to a tax of a fifteenth. Two other important decisions were the consequence of his money difficulties:—in 1297 he refused submission to the bill of Boniface VIII., forbidding the clergy to be taxed on their ecclesiastical revenue, and in 1299 he was obliged to confirm the charters conferring on the people the right to fix their own taxation. In 1290 Queen Eleanor died, and in 1293 Edward entered into negotiations for a marriage with Margaret, sister of Philip IV. of France; but on account of an act of treachery on the part of the French, these negotiations were broken off for a time, and the marriage did not take place till 1299. From 1295 the affairs of Scotland occupied his chief attention. In 1292 he had decided the claims of the candidates for the Scottish crown in favor of Baliol, on condition that the latter acknowledged him as lord paramount, and on the break-

ing out of war with France he demanded his assistance. On Baliol's refusal, and on learning that he had entered into a treaty with France, Edward in 1266 captured Berwick, defeated the Scots at Dunbar, took the castle of Roxburgh, Jedburgh, Edinburgh, Dumbarton, and Stirling, and receiving at Perth Baliol's unconditional surrender, sent him prisoner to the Tower. In 1297 Wallace headed a rebellion of the Scots, and defeated the English with great slaughter at the battle of Stirling bridge; but next year the Scots suffered an overwhelming defeat at Falkirk, and only prevented the further success of the English by laying waste their own country. In 1299 and 1300 Edward's attempts at invasion met with little success on account of opposition from his barons. In 1301 he invaded Scotland for the fifth time, but at the request of the king of France granted it a truce. In 1304 he compelled its submission, and excepted from the amnesty granted to the Scotch nobles Sir William Wallace, who was captured and executed in 1305. In 1307, to avenge Bruce's murder of Comyn and his attacks on the English, Edward resolved on a seventh invasion, and though in great bodily weakness, determined to lead his army in person; but his almost unexampled labors had already undermined his vigorous health, and he died July 7, 1307, at the village of Burgh-on-the-Sands, on the fifth day of his march northward from Carlisle. He had given orders that his dead body should be carried before the army until his enemies were conquered; but his son Edward made no endeavor to fulfill his wish. The body was escorted to Waltham, and was buried at Westminster on October 27th.

EDWARD II., King of England, fourth son of Edward I. and of Eleanor, was born at Carnarvon, April 25, 1284, and became heir-apparent in 1285. His first title was Earl of Carnarvon, but in 1301 he was created Earl of Chester and Prince of Wales. His personal character, and the whole tenor and tendency of his reign, may perhaps be best described as the opposite of those of his father. Though not the slave of any of the worst vices, and not without natural abilities, he was weak, indolent, and faithless; and his utter incompetence for the position in which fortune had placed him requires no other proof than the fate which finally overtook him. His first acts after the death of his father foreshadowed his future career. He at once recalled Piers Gaveston, a favorite whom his father had banished from the court, and created him Earl of Cornwall, caused his father's body to be buried at Westminster, and, after rejoining the army for a few days, returned again to London, and for six years made no serious effort to prosecute the war with Scotland. Previous to his coronation he went to France to be married to Isabella, daughter of Philip II.; and by appointing Gaveston guardian of the kingdom during his absence, and loading him with honors and presents on his return, he roused the animosity of the nobles to such a height that it was only on his promising to agree to certain demands that might be submitted to him at a future Parliament, that they consented to his coronation. It took place February 25, 1308. Until the nobles rose in rebellion in 1312, and executed Gaveston at Warwick castle, the favorite formed a perpetual subject of dispute between the nobles and the king, and was alternately banished and recalled according to the king's exigencies. In 1311 Parliament confirmed the report of the "Committee of Ordinances" appointed to reform the abuses of the administration. The king nominally agreed to act in accordance with the report, but by a saving clause secured to himself full liberty to evade the principal enactments, the result of which was a series of quarrels with the nobles, becoming more serious each

successive time, followed by reconciliations increasing gradually in hollowness till the end of his reign. Robert Bruce took full advantage of the internal difficulties of England, and in 1314 had reconquered the principal strongholds of Scotland with the exception of Stirling castle. For its relief Edward raised an army of 100,000 men, but suffered a ruinous defeat at the battle of Bannockburn, June 24, 1314. Edward made no further effort of importance against the Scots till 1319, when he besieged Berwick, which Bruce had taken, but was compelled to raise the siege, and concluded a two years' truce with Scotland. After the death of Piers Gaveston, the place of favorite with the king was occupied by Hugh Despenser. He was banished by Parliament in 1321, but soon returned; and, provoked at this, the barons under Lancaster declared war, but were defeated and Lancaster executed in March, 1322. In 1323 a fourteen years' truce was concluded with Scotland. In 1324 Edward was persuaded to send the queen to France in order to settle some disputes with the French king. She succeeded in her mission, but refused to return home, an account, she affirmed, of previous ill-treatment by her husband, although doubtless intrigues with Roger Mortimer had something to do with her refusal. From France she went to Flanders, and, raising a small army against the king, landed at Orwell in Suffolk, September 22, 1326. The whole nation flocked to her standard, Despenser was executed, and young Edward was appointed guardian of the kingdom. In 1327, the king was formerly deposed by Parliament, and his son elected in his stead. A plot was formed against the deposed monarch in the same year, and he was murdered with great cruelty at Berkely Castle on September 27th. (See the same writers for this reign as for the last.)

EDWARD III., King of England, the eldest son of Edward II. and of Isabella, was born at Windsor, November 13, 1312. He was appointed guardian of the Kingdom October 26, 1326, and received the crown February 1, 1327. On January 24, 1328, he was married to Philippa, daughter of the Count of Hainault. During his minority the government of the kingdom was intrusted to a body of guardians with Henry of Lancaster at their head, but was virtually usurped by Roger Mortimer, until the king, irritated by his arrogance, caused him to be seized at Nottingham on October 15, 1330, and conveyed to the Tower. He was executed at Tyburn on November 29th. It is said to have been chiefly through Mortimer's influence that, on April 24, 1328, a peace was concluded between England and Scotland, the chief provisions of which were that the Scots agreed to pay England the sum of £20,000, and that Edward agreed definitely to recognize the independence of the Scotch crown. The treaty was very unpopular in England, and it is not surprising, therefore, that, when Edward Baliol, in 1332, made his attempt to mount the Scotch throne, Edward III. gave him indirect assistance, and that after Baliol's dethronement in 1333, an invasion of Scotland was resolved on. On July 19th Edward defeated the Scots at the battle of Halidon Hill, and receiving as the result of his victory the submission of the principal Scotch nobles, he annexed the whole of Scotland south of the Forth to his own crown, and allowed Baliol to reign over the remainder as titular king. Soon after, Baliol was again a fugitive, but was again aided by Edward to mount a nominal throne. After a short period of peace Edward, in July, 1336, ravaged and burned Scotland as far as Aberdeen, but growing complications with France compelled him in the same year to return to England. Though he professed to have a claim, through his mother, on the French throne against Philip of Valois, that claim was left in abeyance and

several acts of aggression on the part of Philip brought about a rupture between the two kings. The Count of Flanders, at Philip's instigation, had broken off commercial relations with England, French privateers were daily committing ravages on English commerce, Aquitaine was continually threatened by desultory attacks, and Philip, though he hesitated to accept the responsibility of being the first to declare war, scarcely attempted to conceal his endeavors to throw that responsibility on Edward. Edward sailed for Flanders July 16, 1338, and at Coblenz held a conference with the emperor, Louis V., at which the latter appointed him his vicar-general, and gave orders for all the princes of the Low Countries to follow him in war for the space of seven years. In 1339 Edward laid siege to Cambrai, but soon afterward raised the siege and invaded France. Philip advanced to meet him, but declined battle, and Edward concluded his first campaign without achieving anything to compensate him for its cost.

In 1340 he defeated the French fleet before Sluys, and after landing in France laid siege to Tournai, but before he succeeded in capturing it he was induced through money difficulties to conclude a truce of nine months with France. In 1342 a truce for two years was concluded between England and Scotland, and at the end of the same year Edward again set out on an expedition against France, but at the intercession of the Pope he agreed to a truce. Shortly after his return to England a great tournament was held by him at Windsor in memory of King Arthur. In 1346 he set sail on the expedition which resulted in the great victory of Crécy and the capture of Calais; and in 1348 he again concluded a truce with France. This year and the following are darkly memorable in English annals from the outbreak of the "black death," which spread terror and desolation throughout the whole country, but on account of the reduction it made in the population, was the ultimate cause of the abolition of serfdom and villanage in England. From this time Edward as a warrior retires somewhat into the background, his place being taken by the Prince of Wales (See EDWARD, THE BLACK PRINCE), who in 1356 won the battle of Poitiers, and took King John prisoner. In 1359 Edward again invaded France, and in 1360 he signed the peace of Bretigny, according to which the French agreed to pay for King John a ransom of three million crowns, and Edward renounced his title to the throne of France, but retained his full sovereignty over the whole of the ancient duchy of Aquitaine, the counties of Ponthieu and Guignes, and the town of Calais. Peace was again broken in 1369 by Charles of France, and when he concluded a truce with England in 1375 all of France that remained in Edward's hands was Bayonne and Bordeaux in the south, and Calais in the north. The last years of Edward's reign form a sad and gloomy close to a career which had had a vigorous and energetic commencement, and had afterward been rendered illustrious by great achievements. His empire in France was virtually overthrown; the vast expenditure which had had such a fruitless result was sorely burdening his subjects, and awakening increasing discontent; and he himself, through the gradual decay of his mental faculties, had become a mere tool in the hands of Anne Travers and of ministers whose only aim was their own aggrandizement. In 1367 the "Good Parliament" virtually seized the helm of the state from the hands of the king and his ministers. It compelled Anne Travers to swear never to return to the king's presence, suspended the ministers Latimer and Lyons, protested against the means then adopted for raising taxes, and demanded a vigorous prosecution of the war. The Black Prince was the chief agent in urging these reforms, but his

death, in the midst of the Parliament's deliberations, for a time rendered almost abortive the good work he had begun. Edward died June 21, 1377.

EDWARD IV., King of England, was the second son of Richard, Duke of York, and was born at Rouen, April 29, 1441. His father was appointed protector of the kingdom during the incapacity of Henry VI., and having in 1460 laid claim to the throne as a descendant of Edward III., was named by Parliament successor of Henry VI. on condition that he allowed Henry to retain his throne. As an heir had been born to the king, it was only natural that Queen Margaret should seek to resist this proposal. She accordingly raised an army against the Duke of York, and he was defeated and slain at the battle of Wakefield, December 30, 1460. Edward, who was at that time in Wales, on hearing of his father's death resolved to avenge it, and gathering a mixed army of Welsh and English, defeated the Earls of Pembroke and Ormond at Mortimer's Cross in Hereford, February 7, 1461. On February 17th, Queen Margaret defeated the Yorkists at St. Albans; but Edward, notwithstanding her victory, having united his forces with those under Warwick, entered London, and, being received by the citizens with loud shouts of welcome, was proclaimed king, March 4, 1461. But he could not permit himself to enjoy his dignities in idle security. King Henry had escaped and joined the army of the queen, which, having withdrawn to the north, was to the number of about 60,000 encamped at Towton, about eight miles from York. Here Edward and Warwick met the queen's forces, and a battle of great obstinacy ensued, which, notwithstanding the arrival of a reinforcement to Margaret in the middle of the battle, ended in her utter defeat. Henry and Margaret fled to Scotland, and on June 28th, Edward was crowned at London. Margaret afterward escaped to France, from which country, in 1462, she made two separate attempts to retrieve the fallen fortunes of her house, but these, as well as one made by Henry in 1464, proved utterly abortive. In May, 1461, Edward was secretly married to Elizabeth, daughter of Richard Woodville, Lord Rivers, and widow of Sir John Gray; and having in the September following publicly acknowledged her as his queen, he grievously disappointed and displeased his chief supporter, the Earl of Warwick, who had been negotiating for the marriage of Edward with the sister of Louis XI. of France. Though from this time secretly bending all his energies to accomplish Edward's overthrow, Warwick skillfully concealed not only his intentions, but even his share in overt acts; and it was not till 1469 that, receiving intelligence of the success of an insurrection secretly fomented by him in Yorkshire, he showed his hand by taking the king prisoner near Coventry. Shortly after, Edward either escaped or was allowed his freedom; and in 1470 he defeated the rebels near Stamford, and compelled Warwick to make his escape to France. Here the earl, through the good offices of Louis, was reconciled with Queen Margaret, and agreed to invade England in behalf of her husband. Landing at Dartmouth, he soon had an army of 60,000 men. Edward, taken by surprise and unable to raise a force sufficient to oppose him, fled to Holland; and Warwick, having released Henry, again got him acknowledged king. Edward, in his turn, adopted the tactics that had been successful against him. In 1471 he landed at Ravenspur, and professing at first to resign all claims to the throne, and to have no further aim than merely to recover his inheritance as Duke of York, he soon collected sympathizers, and then, throwing off all disguise, issued proclamations against Henry and Warwick. He marched without opposition direct to London, and, after entering it and taking

Henry prisoner, advanced against the army which had been collected to oppose him. The encounter took place at New Barnet, April 14th, when the party of Warwick were defeated, and Warwick himself was slain. On the same day Margaret, with her son Edward, now eighteen years of age, had landed at Weymouth, but on May 4th she was defeated at Tewkesbury and taken prisoner. Her son either perished in battle, or was slain shortly afterward by the order of the king; and her husband, Henry, died in the Tower on May 21st, the evening of the day on which Edward reentered London. Secure at home, Edward now turned his thoughts on foreign conquest. In 1475, he formed an alliance with Charles of Burgundy against Louis, but on landing on the Continent with a large army, he learned that the Duke and Louis had come to an understanding, and prudence compelled him to enter into a seven years' treaty with the power he had hoped to conquer. Shortly after this, the Duke of Burgundy having died, Clarence, the brother of Edward, wished to marry Mary, the duke's daughter and heiress; but Edward, perhaps on account of chagrin at the former deceit of her father, refused his consent to the suit. Exasperated at his brother's conduct, Clarence took no pains to conceal his anger, and Edward thought it necessary to impeach him of treason before the House of Lords. He was condemned to death, February 7, 1478, and on February 17th was executed in the Tower, but with so great secrecy that the manner of his death is unknown. Edward died April 9, 1483.

EDWARD V., King of England, was the son of Edward IV. and of Elizabeth, and was born in the sanctuary of Westminster Abbey, November 4, 1470. As soon as Edward IV. was dead, his brother Richard, Duke of Gloucester (see RICHARD III.), acting so far in accordance with the late king's wishes, secured possession of the person of the young king, and was appointed by Parliament protector of the realm. He had previously arrested Earl Rivers, the young king's uncle, and Lord Richard Gray, his half-brother, and his next step was to accuse Lord Hastings, president of the royal council, of designs on his life, and to have him executed almost immediately afterward on Tower Green. The way being now cleared for a full declaration of his designs, he caused it to be decided at a meeting of the Lords and Commons that the marriage of Edward IV. had been invalid on account of the existence of a pre-contract; and, receiving a petition to act in accordance with this decision and assume the crown, he, after a very slight reluctance, consented to do so. Edward V. and his brother were confined in the Tower. Shortly after, it was known that they were dead, but though it was the general conviction that they had been murdered, it was not till twenty years afterward that the manner of their death was discovered. Brackenbury, the constable of the Tower, had refused to obey the command of Richard to put the young princes to death, but complied with a warrant ordering him to give up the keys of the Tower for one night to Sir James Tyrrel, who had agreed to provide for the accomplishment of the infamous act. He gave admittance to two assassins hired by himself who smothered the two youths under pillows, while they were asleep.

EDWARD VI., King of England, was the son of Henry VIII. and of Jane Seymour, and was born at Hampton Court, October 12, 1537. "Till he came to six years old," he says in his journal, "he was brought up among the women." He was then transferred to the direction of several masters, who instructed him in Latin, Greek, French, philosophy, and divinity. In his tenth year he was created Prince of Wales and Duke of Cornwall, and very shortly afterward he succeeded

to the throne on the death of his father, January 28, 1547. The will of Henry, for the protection of the young king, had named merely a council of regency, but that council immediately chose Edward, Earl of Hertford, as protector, and on February 16th ordered that he should be created Duke of Somerset. The leanings of the protector were strongly Protestant, and he inaugurated his protectorate by the repeal of various Acts whose tendency was to support the waning influence of the Church of Rome, and by additional legislation in favor of Reformation principles. Though England was in a somewhat unsettled state, this did not prevent him from planning an expedition against Scotland, on account of that power refusing to fulfill a former treaty by which a marriage had been agreed upon by Mary Queen of Scots and Edward. He defeated the Scots at the battle of Pinkie Cleugh, September 10, 1547, and next year captured Haddington; but, on account of growing dissensions at home, he was compelled to give up all further attempts against Scottish independence. His brother, who had been created Lord Seymour of Sudeley and made lord admiral of England, was suspected of being at the head of a plot to overturn his authority, and with something of bravado admitted as much as was sufficient to criminate himself, although he refused to answer in regard to the more serious charges. In the House of Lords a bill was framed against him which passed the House of Commons almost unanimously, and, it being assented to by the king shortly afterward, he was executed on Tower Hill, March 20, 1549. In the following summer the distress consequent on the depreciation of the currency and the wasteful expenditure of the court awakened a general discontent, which in different parts of the kingdom broke out into open insurrection. The protector, instead of depressing the rebellion by vigorous measures, gave considerable concessions to the demands of the populace, his sympathy with whom he openly admitted. By such an avowal he necessarily alienated the nobility, and they speedily planned his overthrow. The council, headed by Dudley, Earl of Warwick, declared against him, deposed him, and imprisoned him in the Tower, October 14, 1549. He regained his freedom shortly afterward, but a plot which he was concocting for the overthrow of Warwick having prematurely come to light, he was again arrested in 1551, and being convicted of high treason, he was executed on Tower Hill, January 22, 1552. The king, who, except where his religious convictions were concerned, was a mere puppet in the hands of the faction which at any time was paramount, yielded his assent to the execution, apparently without any feelings of compunction. Warwick, some time before this created Duke of Northumberland, now exercised absolute sway over the affairs of the kingdom, but he was hated by the populace, and distrusted even by the friends who had raised him to power. He found it necessary, therefore, to take further steps to guarantee the stability of his authority. The king was dying rapidly of consumption, and his sister Mary being heir to the throne, Northumberland could not hide from himself the probability that his own overthrow would follow her accession. He therefore took advantage of the king's strong religious prejudices to persuade him to make a will, excluding Mary and Elizabeth from the succession to the throne on the ground of their illegitimacy, and nominating as his successor Lady Jane Grey, who was married to the duke's eldest son. The arbitrary urgency of Northumberland and the religious obstinacy of Edward prevailed over the strong objections of the judges, and letters patent being drawn out in accordance with the king's wishes, passed under the Great Seal, and were

signed by the chief nobles, including, although only after repeated endeavors to alter Edward's determination, Cranmer, archbishop of Canterbury. Edward died July 4, 1553.

EDWARD, THE BLACK PRINCE, son of Edward III. of England, and of Philippa, was born at Woodstock, June 15, 1330. In 1337 he was created Duke of Cornwall. He was appointed guardian of the kingdom during the king's absences in France in 1338, 1340, and 1342, and on his return in 1343 was created Prince of Wales. In 1346 he accompanied his father's fourth expedition against France, when the division led by him bore the chief brunt in the battle of Crécy. In 1350 he shared with his father the glory of defeating the Spanish fleet at the battle of "L'Espagnols-sur-Mer." In 1355 he commanded the principal of the three armies raised by the English for the invasion of France, and landing at Bordeaux captured and plundered the chief of its southern towns and fortresses. In the year following he gained the great victory of Poitiers, and took King John prisoner; and returning to England in 1357, he entered London in triumphant procession, accompanied by his illustrious captive. During the pause of arms which followed the treaty of Bretigny he was married to his cousin Joan, commonly called the Fair Maid of Kent, of whom he was the third husband. This event took place in 1361. Shortly after, he was created Duke of Aquitaine, and he set sail for his new dominions in February, 1363. Here his life was spent in comparative quietude until Pedro, the deposed monarch of Castile, sought his assistance to remount the Spanish throne. Trusting to Pedro's promises to defray the cost of the expedition, the Black Prince agreed to his request. He marched across the Pyrennees, defeated Don Henry with great slaughter at the battle of Navarette, and two days afterward, along with Don Pedro, entered Bruges in triumph. Don Pedro, however, speedily forgot the promise of payment which his distresses had induced him to make, and after the Black Prince had waited some months in vain for its fulfillment, he was compelled to return to his duchy, having lost four-fifths of his army by sickness alone. To defray his expenses he found it necessary to impose on Aquitaine a hearth tax, and the Gascon lords having complained to the King of France, he was summoned in 1369 to Paris to answer the complaint. He replied that he was willing and ready to come, but it would be with "helm on head, and with 60,000 men." War was consequently again declared between England and France. Two simultaneous invasions of English territory were planned by the French—the one under the Duke of Anjou, the other under the Duke of Berri. The latter laid siege to Limoges, which by the treachery of its bishop basely surrendered. Enraged almost to madness, the prince swore by the "soul of his father" that he would recover the city, and after a month's siege fulfilled his oath. Surprising the garrison by the springing of a mine, he carried the city by assault, and massacred without mercy every man, woman, and child found within its walls. This terrible act of cruelty, attributable, it is only charitable to suppose, partly to the irritation of ill health, and possibly to chagrin arising from the presentiment that the English power in France was now on the wane, is the one blot on his fair fame. It closed also his military career, for he was compelled in 1371, by the advice of his physicians, to return to England. From this time his constitution was utterly broken, but he lingered on to witness the loss of his duchy to England, and also to originate the measures of the "Good Parliament," although his death prevented their completion. He died at Westminster, June 8, 1376. He was buried at

Canterbury Cathedral, where his mailed effigy may still be seen.

EDWARDES, SIR HERBERT BENJAMIN, major-general in the East Indian army, one of the noblest names on the roll of the soldier-statesman of the British Indian empire, was born at Frodesley, in Shropshire, November 12, 1819, and died in 1868.

EDWARDS, BRYAN, the well-known historian of the West Indies, was born at Westbury, in Wiltshire. In 1784 he published *Thoughts on the Proceedings of Government Respecting the Trade of the West Indian Islands with the United States of America*. This was followed by a speech delivered at a free conference between the Council and Assembly at Jamaica, held November 25, 1789, on the subject of Wilberforce's propositions concerning the slave trade. It was in 1793, however, that he published his great work, on which he had been many years engaged, intitled *History, Civil and Commercial, of the British Colonies in the West Indies*, 2 vols. 4to. On the question of slavery and the slave trade he naturally took the planter's view, but he expressed himself with moderation and candor. In 1796 he published, in one volume quarto, a *History of St. Domingo*, which had then excited a deep interest, on account of the insurrection of the slaves, and the consequent establishment of an independent negro government. In 1801 a new edition of both these works was published, in three vols. 8vo, under the general title of *History of the West Indies*. A fifth edition issued from the press in the year 1819. After a lengthened residence in Jamaica Edwards returned to England, and in 1796 became M.P. for the borough of Grampound, which he continued to represent till his death, July 15, 1800.

EDWARDS, GEORGE (1693-1773), a celebrated antiquarian and ornithologist, was born at Stratford, in Essex.

EDWARDS, JONATHAN, the most distinguished metaphysician and divine of America, was the son of the Rev. Timothy Edwards, and of Esther, daughter of the Rev. Solomon Stoddard, of Northampton, and was born at East Windsor, Connecticut, October 5, 1703. He was the only son in a family of eleven children, of whom four were older than himself. Even in his very early years the religious instruction communicated to him by his parents seems to have engaged a large share of his interest, and to have exercised a strong influence on his character. In September, 1716, he entered Yale College. He took his B.A. degree in 1720, but with a view to preparation for the ministry he continued his residence at college for two additional years. In 1718, he read Locke on the *Human Understanding*, and it was from its perusal that his intense passion for abstract thought was first kindled. He received license to preach in 1722, and in August of that year, on the invitation of a number of ministers in New England, he went to preach to the Presbyterians in New York, where he continued eight months. He was invited by the congregation to continue with them permanently, but on account of doubts as to his future usefulness in that particular sphere, he declined their invitation, and returned to his father's house at East Windsor. Here he prosecuted his studies in theology and metaphysics till June, 1724, when he was appointed tutor in Yale College. About this time he completed the series of seventy resolutions begun during his preparation for the ministry, and designed to "regulate his own heart and life." No. 11 of these may be mentioned as specially characteristic:—"Resolved, when I think of any theorem in divinity to be solved, immediately to do what I can toward solving it, if circumstances do not hinder." He resigned his tutorship in September,

1726, on receiving an invitation from Northampton to become colleague and successor to his grandfather, the Rev. Samuel Stoddard, and in February, 1727, he was ordained to that office. In the following July he was married to Sarah, daughter of the Rev. James Pierrepont, of Newhaven. He continued at Northampton till June 22, 1750, when, on account of a dispute that had arisen from an attempt on his part to prohibit some of the younger members of his congregation from perusing certain books, which in his opinion were obscene, he found himself compelled to resign his charge. On learning of his resignation some of his friends in Scotland advised him to settle in that country, and he was also invited to a church in Virginia, but he accepted in preference to either invitation the proposals made to him by the "Society in London for Propagating the Gospel in New England," that he should become missionary to the Housatonnuck Indians, who were settled at Stockbridge, Berkshire County, Massachusetts. The nature of his work now left him in possession of considerable leisure, of which he made use to such advantage that, within the six years of his residence at Stockbridge, he completed four of his principal treatises, including that on the *Freedom of the Will*, which was published in 1754. On account of the fame which this work acquired for him he was in 1757 called to succeed President Burr of Princeton College, New Jersey. He was installed February 16, 1758, but was scarcely spared to enter upon the performance of his duties. On account of the prevalence of small-pox in the neighborhood, he submitted to inoculation, and the disease taking an unfavorable turn, he died on March 28th. Edwards says of himself that he possessed "a constitution in many respects peculiarly unhappy, attended with flaccid solids, rapid, sized, and scarce fluids, and a low tide of spirits, often occasioning a kind of childish weakness and contemptibleness of speech, presence and demeanor." Notwithstanding this unhappy constitution, he was throughout life a laborious student, often prosecuting, pen in hand, his arduous metaphysical researches for thirteen hours daily. As an orator he sometimes held not only the feelings but the intellects of his hearers completely under his sway. The extraordinary influence which he thus exercised was not due to any personal advantages, for even when his oratory was most effective the "contemptibleness of his speech and demeanor" still remained, although it was no longer felt by his hearers, nor to any special excellences of style, for though his language conveyed his meaning without ambiguity, it did so not only without any of that peculiar felicity of arrangement which is usually one of the chief elements of successful oratory, but in a bald, even in a lumbering and awkward, manner. His eloquence was simply intense moral earnestness, expressed in the form of what, in more senses than one, might be called "merciless logic."

His writings present a very remarkable conjunction of apparently contradictory qualities, a conjunction attributable partly to a peculiar combination of natural mental characteristics, and partly to a habit of solitariness which rendered him almost completely ignorant of the dominant tendencies of contemporary thought, and placed him almost beyond the reach of any external influences fitted to aid him in freeing himself from the shackles of past systems. The outstanding features of his character were undoubtedly his sense of reverence and his passion for ratiocination. In one respect these two opposite characteristics combined to produce a harmonious result, namely, to impress him with an almost overwhelming conviction of the claims of duty. His awe of the Supreme Power was in one aspect of such a nature as to seem consistent only with the grossest

superstition, but from the very fact that it was the awe of an intellect, within the sphere of logic, so keen and penetrating, it was necessarily a moral awe, an awe which intensified that sense of duty whose requirements his logical faculty revealed with a distinctness which admitted of no fallacy or evasion. It was his overwhelming conviction of duty which gave to his system, theological, moral, and metaphysical, what unity it possesses.

The fame of Edwards is associated chiefly with his treatise on *The Freedom of the Human Will*.

EDWARDS, RICHARD (1523? - 1566?), a musician and writer of interludes, was born in Somersetshire, studied at Corpus Christi College, Oxford, took his master of arts degree in 1547, entered at Lincoln's Inn, and was appointed in 1561 a gentleman of the royal chapel and master of the singing boys. He probably died about the end of 1566, as his epitaph was written by Turberville in the following year.

EDWIN, or EADWINE, King of Northumbria, was the son of Ælla, King of Deira, and was born about 586. At the death of Ælla, in 588, Ethelfrid, king of Bernicia, Ælla's brother-in-law, usurped the throne of Deira, and united the two kingdoms Deira and Bernicia, under the name of Northumbria. Edwin ultimately found shelter with Rædwald of East Anglia, who, in 617, defeated and slew Ethelfrid near the River Idle, and enabled Edwin to mount the Northumbrian throne. In 625 Edwin married Ethelburgha, daughter of Edbert, king of Kent. She had been converted to Christianity, and, at her desire, Paulinus, a Christian missionary, was allowed to enter Northumbria. Not long after Paulinus' arrival, Eumer, an envoy of the king of Wessex, made an attempt to assassinate Edwin, who was only saved by Lilla, one of his thanes, throwing himself between him and the assassin's weapon. The thane was killed, and the sword passing through his body inflicted also a dangerous wound on the king. The queen about the same time was seized by the pangs of childbirth, and was so alarmed on account of what had happened that she and her infant were for a time in imminent danger. Paulinus offered up prayers for their recovery, and Edwin was so much impressed by the seeming answer to the petition, that, though he did not at once adopt the Christian faith, he permitted the infant and twelve of his household to be baptized. He also declared to Paulinus that if he should succeed in overthrowing the West Saxons, against whom he had determined to make war, he would himself become a Christian, and receive the rite of baptism.

After his victorious return he renounced his heathen gods, but it required all Paulinus' powers of persuasion to get him finally to adopt Christianity, and to give it his sanction as the religion of Northumbria. Ultimately, however, he convened a council of his nobles to ask their advice, and when they unanimously declared for the new religion, Coifi, the high priest, at once offered to destroy all the heathen places of worship throughout the land. This was done, and in 628 the Northumbrians flocked in crowds to be baptized by Paulinus. While the introduction of Christianity into Northumbria is the circumstance most worthy of mention in Edwin's reign, it was also remarkable in other respects. So strict was his administration of justice, that it was said that "a woman with her babe might walk scatheless from sea to sea in Edwin's day." He was also the first real Bretwalda, although Ælla, his father, first laid claim to the title. He compelled the submission of the West Saxons, conquered Anglesea and Man by his fleet, and received tribute from all the kingdoms south of the Humber, with the exception of Kent. To guard his northern dominion he erected the fortress of Edinburgh

or Edwin's burgh. In 633 Penda, King of Mercia, taking advantage of a reaction that was setting in in favor of the old paganism, determined to resist Edwin's authority, and combining with Cadwallader, king of the Western Britons, defeated and slew him at the battle of Heathfield.

EDWY, EADWIG, or EDWIN, surnamed the Fair, an Anglo-Saxon king, was the son of Edmund I., and succeeded his uncle, Edred, on the throne in 955, being then from sixteen to eighteen years of age. His immediate rule was limited to Wessex, his younger brother Edgar reigning over Mercia with the title of sub-king. On account of the relation in which Edwy stood to Dunstan, abbot of Glastonbury, it is impossible, from the narratives that have been transmitted to us, to arrive at any certainty as to the interpretation to be given to his character, and to the main facts of his reign. It is said that on the day of his coronation he retired early from the banquet to the apartment of Elgiva, whom he undoubtedly recognized as his wife, but who, according to the monks, was related to him within the prohibited degrees; and that Dunstan, abbot of Glastonbury, enraged at the affront thus put upon the church, followed him, and not without violence dragged him back to the banqueting hall. Either for this particular manifestation of authority, or because the king was opposed to his policy of substituting monks for secular canons and was unable to restrain his domineering spirit, Dunstan was deprived of his offices and banished from the kingdom. The Mercians, however, revolted, and, proclaiming Edgar sole king, recalled Dunstan to their dominions. It is said also that Odo, archbishop of Canterbury, instigated a plot for separating Elgiva from Edwin, that she was sent to Ireland where her face was disfigured with hot searing irons, and that on her escape to England she was again seized and put to death by torture at Gloucester; but the monks affirm that the lady who was subjected to this treatment was not Elgiva, but her mother Ethelgiva, who was also the mistress of the king. Edwy died in 958.

ECKHOUT, GERBRAND VAN DEN (1621-1674), a painter, born at Amsterdam, entered early into the studio of Rembrandt. Though a companion pupil to F. Bol and Govaert Flinck, he was inferior to both in skill and in the extent of his practice; yet at an early period he assumed Rembrandt's manner with such success that his pictures were confounded with those of his master; and, even in our day, the *Resurrection of the Daughter of Jairus*, in the Berlin Museum, and the *Presentation in the Temple*, in the Gallery of Dresden, have been held to represent worthily the style of Rembrandt.

EECLOO, the head town of a district in the province of East Flanders, Belgium, is situated near the Lieve, eleven miles northwest of Ghent.

EEL, a name applied more or less generally to all the species of *Murenida*, a family of soft-finned apodal fishes, but more specially applicable to the species belonging to the sub-family *Anguillina*. The body throughout the family of eels is greatly elongated and of snake-like form. The ventral fins are wanting in all the species, while in certain forms, as the *Muræna*, the pectoral fins are also absent. The skin is thick and soft, and is covered over with a glutinous secretion which gives the eel its proverbial slipperiness. It is also sufficiently tough to enable it to be stripped entire from the body, and in some countries the skin is thus used as a bag or purse. Scales, disposed in groups, are present in the eels belonging to the genus *Anguilla*, but they are so buried beneath the outer layer or scarf skin as not to be apparent, while in such forms as the conger they are altogether wanting. The bronchial openings are small, and lead into a sac, from which another sac is

given off. The gills are thus exposed but slightly to the drying influence of the atmosphere, and it is owing to this, and to the slimy condition of the skin, that eels can exist for a considerable time out of water. According to Doctor Günther, the *Murenida* comprise twenty-six genera and 230 species, inhabiting the seas and fresh waters of temperate and tropical regions. Of these only the true eels, *Anguilla*, inhabit the fresh water, although most of the latter are likewise marine.

EFFIGIES, MONUMENTAL.—In the course of the twelfth century the idea appears, for the first time, to have been carried into effect that the figure of a deceased personage should be represented by effigy upon his monumental memorial. These earliest attempts at commemorative portraiture were executed in low relief upon coffin-lids of stone or porbeck marble, some portions of the designs for the most part being executed by means of incised lines, cut upon the raised figure. Gradually, with the increased size and the greater architectural dignity of monumental structures, effigies attained to a high rank as works of art, so that before the close of the thirteenth century, very noble examples of figures of this order are found to have been executed in full relief; and, about the same period, similar figures also began to be engraved upon monumental slabs of stone or marble, or upon plates of metal, which were affixed to the surfaces of slabs that were laid in the pavements of churches. Engraven plates of this class, known as "Brasses," continued in favor until the era of the Reformation, and in our own times their use has been revived. It seems probable that the introduction and the prevalence of flat, engraved memorials, in place of commemorative effigies in relief, were due, in the first instance, to the inconvenience and obstruction resulting from increasing numbers of raised stones on the pavement of churches; while the comparatively small cost of engraven plates, their high artistic capabilities, and their durability combined to secure for them the popularity they unquestionably enjoyed. It will be kept in remembrance that, if considerably less numerous than contemporary incised slabs and engraven brasses, effigies sculptured in relief, and with some exceptions in full relief, continued for centuries to constitute the most important features in more than a few mediæval monuments. In the thirteenth century, it must be added, their origin being apparently derived from the endeavor to combine a monumental effigy with a monumental cross upon the same sepulchral stone, parts only of the human figure sometimes were represented, whether in sculpture or by incised lines, as the head or bust, and occasionally also the feet; in some of the early examples of this curious class the cross symbol is not introduced, and after a while half-length figures became common.

Except in very rare instances, that most important element which may be distinguished as genuine face-portraiture is not to be looked for, in even the finest sculptured effigies, earlier than about the middle of the fifteenth century. From an early period in their existence effigies may be considered occasionally to have been portraits properly so called; and yet even in such works as these an approximately correct general resemblance but too frequently appears to have been all that was contemplated or desired. At the same time, from the first, in these monumental effigies we possess contemporary examples of vestments, costume, armor, weapons, royal and knightly insignia, and other personal appointments and accessories, in all of which accurate fidelity has been certainly observed with scrupulous care and minute exactness. Thus, since the monumental effigies of England are second to none in artistic merit, while they have been preserved in far greater numbers, and generally in better condition than in other countries, we

may claim to possess in unbroken continuity an unrivaled series of original personal representations of the successive generations of our predecessors, very many of them being, in the most significant acceptation of that term, veritable contemporaneous portraits.

EGBERT, or EGGEBERT, King of the West Saxons, was born about 775, and laid claim to the throne in 786, but Brihtric was elected, and he was compelled to take refuge with Offa, king of Mercia. Although Offa refused to surrender him when requested by Brihtric, he declined to give him further protection. Egbert thereupon fled to France, and took up his residence at the court of Charlemagne; and it is doubtless to the training he received from that great general and statesman that the success of his reign in Wessex is in a large measure to be traced. When Brihtric was poisoned by his queen Eadbrurga in 800, Egbert was recalled and ascended the West Saxon throne. From his reign may be dated the supremacy of the West Saxon kings in England. In 823 he defeated Beornwulf, king of Mercia, at Ellandun (near Wilton); and in the same year he united Kent, Essex, and Sussex to his crown, and compelled East Anglia to acknowledge him as its overlord. In 827 he compelled the submission of Mercia, and leading an army into Northumbria received its submission without trial battle. In 828 he conquered Wales, and thus the isle of Britain, with the exception of the Picts, the Scots, and the Strathclyde Welsh, acknowledged a West Saxon king as its overlord. During the last period of his reign his kingdom was subjected to repeated attacks by the Danes. In 832 they ravaged Sheppey, and in 833 defeated Egbert at Carrum (thought by some to be Charmouth, in Devon), but in 835 he gained a great victory over a united force of Danes and Welsh at Hengestesdun, in Cornwall. He died in 836.

EGEDE, HANS, the first missionary of Greenland, was born in the vogtship of Senjen, in Norway, January 31, 1636. In his twenty-second year he became pastor at Waagen, in the bishopric of Drontheim, but the study of the chronicles of the Northmen having awakened in him the desire to visit the colony of Northmen in Greenland, and to convert them to Christianity, he resigned his charge in 1717; and having, after great difficulty, obtained the sanction and help of the Danish Government in his enterprise, he set sail with three ships from Bergen on May 3, 1721, accompanied by his wife and children. He landed on the west coast of Greenland on July 30, but found to his dismay that the Northmen were entirely superseded by the Esquimaux, in whom he had no particular interest, and whose language he would be able to master, if at all, only after years of study. But, though compelled to endure for some years great privations, and at one time to see the result of his labors almost annihilated by the ravages of small-pox, he remained resolutely at his post. He soon gained the affections of the people, and succeeded gradually in converting many of them to Christianity, and in establishing a considerable commerce with Denmark. Ill-health compelling him to return home in 1734, he was made principal of the seminary at Copenhagen, in which workers were trained for the Greenland Mission; and from 1740 to 1747 he was superintendent of the mission. He died in 1758. He is the author of a book on the natural history of Greenland.

EGEDE, PAUL (1708-1789), son of the preceding, accompanied his father to Greenland, assisted him in his labors there, and acted as his successor from 1734 to 1740. On his return to Denmark he became professor of theology in the mission seminary, and afterward was Superintendent of the Greenland Mission. He published a *Greenland-Danish-Latin Dictionary* (1750), *Greenland Grammar* (1760), and *Greenland Catechism* (1756).

In 1766 he completed the translation, begun by his father, of the New Testament into the Greenland tongue; and in 1787 he translated *Thomas à Kempis*. In 1789, he published a journal of his life in Greenland.

EGER, the chief town of a circle in the kingdom of Bohemia, is situated on the River Eger, and lies at the foot of one of the spurs of the Fichtelgebirge. In the townhouse, which at that time was the burgomaster's house, Wallenstein was murdered, February 25, 1634. His sword and writing table are exhibited in the town.

EGG, the name given to the body formed in the female reproductive organs, which, when impregnated by the male element, gives origin to the young of animals. Although differing widely among themselves in form and structure, the eggs of all animals are found to consist of the same essential parts, viz., the germ cell, the yolk, and the yolk membrane, one chief difference between them consisting in the relative quantity of the yolk element present, this apparently depending on the degree of development which the young attain before leaving the egg. Thus birds which leave the shell in a highly developed state, have in their eggs a large quantity of yolk, besides the albumen or "white," which is added to the egg before it receives the outer calcareous covering, and which, along with the yolk, serves as a storehouse of food for the young chicken during the process of incubation. In insects, on the other hand, which leave the egg in the immature condition of larvæ, the yolk is comparatively small, as it is also in mammals, whose eggs or ova are exceedingly minute, and which owe the high development they attain before birth to nourishment drawn directly from the parent. The majority of animals are *oviparous*—that is, the eggs leave the body of the female and are hatched outside; a few are *ovo-viviparous*, the eggs being retained in the oviduct until the young are ready to leave; while mammals are *viviparous*, the young, after leaving the egg, attaining considerable development before birth, in the womb of the female. In oviparous animals the egg, within certain limits, is proportional in size to that of the adult form to which it gives origin; the larger the bird, for example, the larger, as a rule, is the egg. This, however, is not without exceptions; thus the egg of the guillemot is as large as that of the eagle, and ten times larger than that of the raven, although guillemot and raven are of nearly equal size.

Owing to the fluid nature of the contents of eggs, they are generally roundish in form, although in this respect they also offer considerable variety; thus the eggs of owls and of turtles are nearly spherical, those of ducks, crocodiles, and snakes oval, and those of most sea-fowl pear-shaped. The external covering is generally more or less smooth, as in the eggs of birds, but in the case of insects they exhibit the most varied markings, being covered with spines, tubercles, and pits, often symmetrically arranged. Considerable diversity also exists in the composition of the outer covering of the egg in oviparous animals; in snakes and lizards it consists of a parchment-like membrane not unlike the inner coating of a hen's egg; in birds, turtles, and crocodiles, there is a hard calcareous shell; in cartilaginous fishes, as sharks and rays, the egg in passing through the oviduct is imbedded in a four-sided horny case, from the corners of which tendrils are given off, by which the egg-capsule is moored to floating sea-weed. These, after the escape of the young fish, are often cast upon the shore, where they are familiarly known as "mermaids' purses." The external covering of the eggs of osseous fishes, as salmon and trout, is exceedingly tough and elastic, "rebounding," says Mr. Frank Buckland, "from the floor like an india-rubber ball;" and this no doubt prevents them from being crushed in the gravelly

beds of the running streams in which they are deposited. The eggs of frogs and toads are surrounded with a tough layer of albuminous substance, which expands in water into a transparent jelly. The eggs of the frog occur in great masses, piled together like miniature cannon balls, while those of the toad are connected together so as to resemble strings of beads.

EGG, AUGUSTUS LEOPOLD (1816-1863), a painter, was born in Piccadilly, London, where his father carried on business as a gun-maker. He had some schooling at Bexley, and was not at first intended for the artistic profession; but, developing a faculty in this line, he entered in 1834 the drawing class of Mr. Sass, and in 1835 the school of the Royal Academy. His first exhibited picture appeared in 1837 at the Suffolk Street Gallery. In 1838 he began exhibiting in the Academy, his subject being a Spanish Girl; altogether he sent twenty-seven works to this institution. In 1848 he became an associate, and in 1860 a full member, of the Academy. In 1857 he took a leading part in selecting and arranging the modern paintings in the Art-Treasures Exhibition in Manchester. His constitution being naturally frail, he went, in 1853, with Dickens and Wilkie Collins, to Italy for a short trip, and in 1863 he visited Algeria. Here he benefited so far as his chronic lung-disease was concerned; but, riding out one day exposed to a cold wind, he caught an attack of asthma, which cut him off on March 26, 1863, at Algiers.

EGINHARD is best known as the biographer of Charlemagne. His name is variously spelled in manuscripts. Einhardus, Einhartus, Ainhardus, Heinhardus, are the earliest forms. In the tenth century it was altered into Agenardus, and out of this form arose Eginardus and Eginhardus. The French and English languages have adopted this latter form; but it is unquestionably wrong, and the weight of authority is for Einhardus or Einhartus. The circumstances of his life are involved in considerable obscurity, owing partly to the want of information and partly to the doubtfulness or indefiniteness of our authorities. According to the statement of Walafridus Strabo, a contemporary, he was born in the district which is watered by the river Maine in the modern duchy of Hesse-Darmstadt. There is documentary evidence that he was resident in that place in the years 788 and 791. Owing to his intelligence and ability he was transferred from the monastery by its abbot Baugolfus to the palace, where he became intimate with the emperor and his family, and received commissions of great trust and importance. His removal to the palace took place not later than 796.

He was intrusted by the emperor with the charge of public buildings. He thus became one of the imperial ministers, and resided with the emperor at Aix-la-Chapelle. In reference to his artistic skill he received the Scripture name of *Beseleel*, according to a fashion prevalent of giving ancient names to contemporaries. Some suppose that he constructed the basilica at Aix-la-Chapelle and the other buildings mentioned in chapter xvii of his *Life of Charlemagne*, but there is no express statement to that effect. The emperor employed him in 806 as legate to Rome to obtain the Pope's signature to a will which he had made in regard to the division of his empire. Hence the inference has been drawn that he was the emperor's secretary; but no contemporary ascribes this office to him.

It was owing to Eginhard's influence that in 813 Charlemagne made his son Louis partner in the empire. Louis, on becoming sole emperor, proved grateful to Eginhard, retained him in the office of head of public works, made him tutor to his son Lothaire in 817, and showed him every mark of respect.

Eginhard married Imma, a noble lady, a sister of

Bernharius, who was Bishop of Worms and Abbot of the Monastery of Wizenburg. Later tradition converted Imma into the daughter of Charlemagne, and invented a romantic story in regard to the marriage of Eginhard and Imma. It is doubtful whether he had any offspring.

Eginhard began to grow tired of the intrigues and troubles of court life, and in 830 finally withdrew to Mulinheim, which he named Seligenstadt, where he had erected a church to which he had transported the relics of St. Marcellinus and St. Peter. His wife helped him in all his efforts, and her death in 836 caused him bitter grief. The Emperor Louis visited him in his retreat the same year, probably to console him, but Eginhard did not long survive his wife, for he died March 14, 840.

EGLANTINE, a name for the sweet-brier, *Rosa rubiginosa*, and for *R. lutea*, another species of Lindley's tribe of *Rosa Rubiginosa*, and apparently the *R. Eglanteria* of Linnaeus. The signification of the word seems to be thorn-tree or thorn-bush, the first two syllables probably representing the Anglo-Saxon *egla*, *egle*, a prick or thorn, while the termination is the Dutch *tere*, *taere*, a tree.

EGLINTON, ARCHIBALD WILLIAM MONTGOMERIE, THIRTEENTH EARL OF (1812-1861), Lord Lieutenant of Ireland, was born at Palermo.

EGMONT (EGMOND), LAMORAL, COUNT OF, Prince of Gavre, was born in Hainault, in 1522. He was the younger of the two sons of John IV., Count of Egmont, by his wife Francisca, Princess of Gavre, and succeeded to the title and estates on the death of his elder brother Karl, about 1541. In this year he served his apprenticeship as a soldier in the expedition of the Emperor Charles V. to Algiers, distinguishing himself in command of a body of cavalry. In 1545 he married Sabina of Bavaria, sister of the Elector Palatine, and the wedding was celebrated with great pomp, at Spiers, in the presence of the emperor. Soon afterward Egmont was invested with the order of the Golden Fleece. He accompanied the emperor in the various campaigns and progresses of the following years, was with him at the unsuccessful siege of Metz (1553), and in 1554 was sent to England as head of an embassy to seek the hand of Queen Mary for Philip (II.) of Spain. He was present at their marriage solemnized shortly after at Winchester. In the summer of 1557 Count Egmont was appointed commander of the Spanish cavalry in the war with France; and it was by his vehement persuasion that the battle of St. Quentin was fought. The victory was determined by the brilliant charge which he led against the French. The reputation which he won at St. Quentin was raised still higher in 1558, when he encountered the French army under De Thermes, at Gravelines, on its march homeward after the invasion of Flanders, totally defeated it, and took Marshal de Thermes and many officers of high rank prisoners. The battle was fought against the advice of the Duke of Alva, and the victory made Alva Egmont's enemy. But the count now became the idol of his countrymen, who looked upon him as the saviour of Flanders from devastation by the French. He was nominated by Philip stadtholder of the provinces of Flanders and Artois. At the conclusion of the war by the treaty of Cateau Cambrésis, Egmont was one of the four hostages selected by the King of France as pledges for its execution. As stadtholder he now showed some sympathy with the popular discontent excited by the Spanish Government, and particularly by Cardinal Granvella, minister to the Regent Margaret. As a member of the council of state he joined the Prince of Orange in a vigorous protest addressed to Philip (1561) against the proceedings of the minister; and two years later he again protested

in conjunction with the Prince of Orange and Count Horn. He was invited by Philip to go to Spain to confer with him on the subject of the remonstrance, but he declined. Egmont, however, who was a strict Catholic, afterward spoke in less hostile terms of the minister; and, at the same time that he was courting the favor of the middle classes, he was becoming more a favorite at the court of the regent. In January, 1565, he accepted a special mission to Spain to make known to Philip to some extent the state of affairs in the Netherlands and the demands of the people. At Madrid the king gave him an ostentatiously cordial reception, and all the courtiers vied with each other in lavishing professions of respect upon him. But earnest discussion of the object of the mission was evaded by the king, and Egmont had to return to the Netherlands loaded only with fine words of flattery and promise. At the very same time instructions were sent to the regent to abate nothing of the severity of persecution, and the Inquisition was established. Egmont was indignant, and the people were in a state of frenzied excitement. In 1566 a confederation of the nobles (*Lis Gueux*) was formed, the document constituting it being known as the Compromise. Egmont then withdrew to his government of Flanders, and showed himself, after some vacillation, an unscrupulous supporter of the Spaniards and fierce persecutor of heretics. In the summer of 1567 the Duke of Alva with an army of veterans arrived in the Netherlands, to supersede the regent Margaret, and to crush with a strong hand the popular opposition. One of his first acts was the treacherous seizure of Counts Egmont and Horn, who were imprisoned at Ghent. A sham process was commenced against them, and after some months they were removed to Brussels, where sentence was pronounced by Alva himself on June 4, 1568. Egmont was declared guilty of high treason and condemned to death. It was in vain that the most earnest intercessions had been made in his behalf by the Emperor Charles V., the Order of the Golden Fleece, the states of Brabant, the electors of the empire, and the regent herself. Vain, too, was the pathetic pleading of Egmont's wife, who with her eleven children was reduced to want, and had taken refuge in a convent. Egmont was beheaded at Brussels the day after the sentence was pronounced, June 5th. He met his end with calm resignation; and in the storm of terror and exasperation to which this tragedy gave rise Egmont's failings were forgotten, and he and his fellow victim to Spanish tyranny were glorified in the popular imagination as martyrs of Flemish freedom. This memorable episode proved to be the prelude to the famous revolt of the Netherlands, the issue of which was independence. Goethe made it the theme of a tragedy. In 1865 a monument to Counts Egmont and Horn, by Fraiken, was erected at Brussels.

EGYPT is a country at the northeastern extremity of Africa, bounded on the north by the Mediterranean Sea, on the south by Nubia, on the east by Palestine, Arabia, and the Red Sea, and on the west by the Great Desert.

By the Greeks and Romans Egypt was usually assigned to Asia, though some gave it to Libya, or Africa. This difference was owing to the adoption of the Nile as the division of the two continents, which would naturally have given half of the country to each continent.

In ancient times Egypt was the country watered by the Nile north of the First Cataract, the deserts on either side being assigned to Arabia and Libya. The Egyptian name, "the black land," is only applicable to the cultivated land. The Misr of the Arabs is distinctly restricted to the same territory, the adjoining deserts being called the deserts of Egypt. Physically, ethno-

graphically, and politically, the two tracts are markedly different, but it is now usual to treat them as a single country.

The political advantages of Egypt, in situation, natural strength, and resources, can hardly be overrated. It lies in the very route of the trade between Europe and Asia, and that between Africa and the other two continents. It is the gate of Africa, and the fort which commands the way from Europe to the East Indies. The natural ports on the Red Sea and the Mediterranean, selected and improved by the wisdom of Alexander and the Ptolemies, whose enterprises have been eclipsed by those of M. de Lesseps in our own days, have always been enough for its commerce, which the great inland water-way of the Nile has greatly aided. The inhabited country, guarded by deserts and intersected in Lower Egypt by branches of the Nile and canals, in Upper Egypt closely hemmed in by the mountains on either side, is difficult to reach and to traverse; at the same time its extreme fertility makes it independent of supplies from other lands, and thus easier to defend. The ancient wealth and power of Egypt should occasion us no wonder, nor even that the country still prospers in spite of centuries of Turkish misrule.

The extent of the cultivated land in Egypt is 5,500 square geographical miles. This is less than half the extent of the land which is comprised within the confines of the desert; for many parts within the limits of the cultivable land are too high to be inundated, and consequently are not cultivated; and other parts, particularly in Lower Egypt, are occupied by lakes, or marshes, or drifted sand. Allowance must also be made for the space which is occupied by towns and villages, the river, canals, etc. Lower Egypt comprises about the same extent of cultivated land as the whole of Upper Egypt.

By the Greeks and Romans Egypt was divided into the Delta or lower country, and the Thebais or upper country. The third division, the so-called Middle Egypt, first occurs in Ptolemy as the Seven Nomes, or Heptanomis. This new division, and the transfer of the Memphite Nome from Lower Egypt to the Heptanomis, are the chief innovations, for the fanciful divisions of Lower Egypt in Ptolemy are no doubt theoretical.

The general appearance of Egypt is remarkably uniform. The Delta is a level plain richly cultivated, and varied alone by the lofty dark-brown mounds of ancient cities, and the villages in groves of palm-trees, standing on mounds often if not always ancient. We sometimes see groves of palm-trees besides those around the villages, but other trees are, except in some parts, rare. In Upper Egypt the valley is in as rich a state of cultivation, but very narrow and bounded by mountains of no great height, which hem it in. They form the edge of the desert on either side of the valley, which has been cut through a rocky table-land by the river. They rarely take the form of peaks. Sometimes they approach the river in bold promontories, and at others are divided by valleys with the beds of torrents which flow only at very long intervals. The bright green of the fields, the reddish-brown or dull green of the great river, and the tender tints of the bare yellow rocks, beneath the deep blue sky, always form a beautiful view. In form the landscape varies little and is not remarkable; in color its qualities are always splendid, and under a general uniformity show continual variety.

The climate of Egypt, being remarkably equable, is healthy to those who can bear great heat, and who avoid the unwholesome tracts of the country, such as the northern coast, where there are extensive salt-marshes. Upper Egypt is healthier than Lower Egypt.

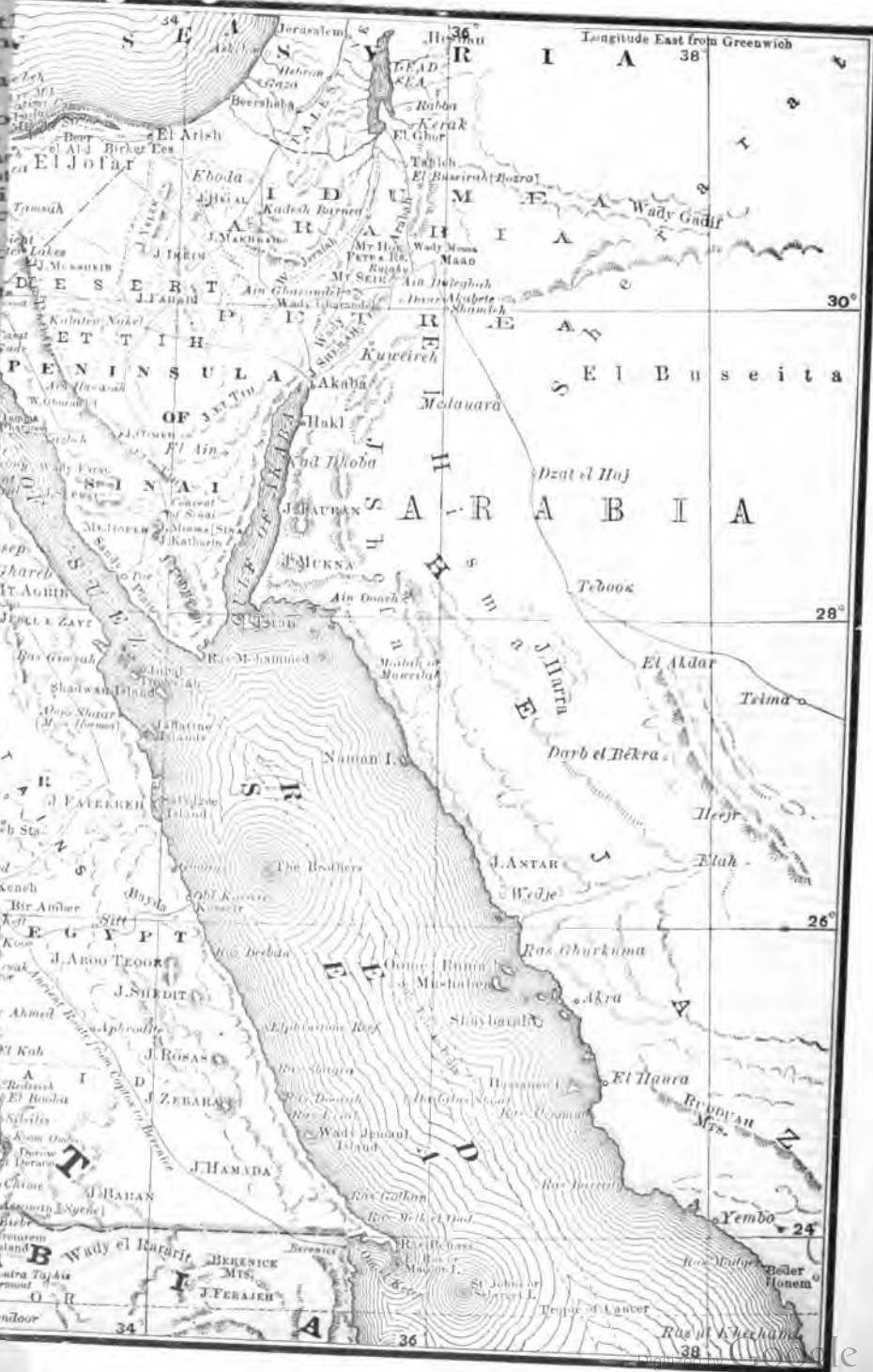
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The atmosphere is dry and clear, except on the sea-coast; and even the humidity which is the consequence of the spreading of the inundation is scarcely felt but by its rendering the heat more oppressive. The heat is extreme during a great part of the year, but it is chiefly felt when accompanied by the hot winds of spring and the sultry calm of the season of the inundation. The winter is often comparatively severe in its cold, especially as the domestic architecture is intended to protect rather from heat than cold.

On the coast of the Mediterranean rain is frequent, but in other parts of Egypt very unusual. At Cairo there is generally one heavy storm in the winter, and a shower or two besides, the frequency of rain having increased since the growth of Ibrahim Pasha's plantations between the city and the river. At Thebes a storm occurs but once in about four years, and light rain almost as rarely.

One of the most interesting phenomena of Egypt is the mirage, which is frequently seen both in the desert and in the waste tracts of uncultivated land near the Mediterranean; and it is often so truthful in its appearance that one finds it difficult to admit the illusion.

Notwithstanding the fineness of the climate, the stranger who visits Egypt is struck by the signs which he sees everywhere of the prevalence of many serious diseases, and in the first half of this century he might have witnessed the effects of a great epidemic of the plague or the cholera. Yet he should remember the poverty of the great mass of the inhabitants, and the insufficiency of their food (both due to the selfish rapacity of the government), the insufficient training of the native medical practitioners, the false system of many of the foreigners established in the country, and the reluctance of the natives to take medical advice. Ophthalmia when neglected is frequently followed by blindness, and dysentery in the same circumstances is very often fatal.

The chief natural feature of Egypt is the Nile, and the great phenomenon of the country the yearly inundation. With the ancient inhabitants the river had, according to their usage with such names, its two appellations, sacred and common. The sacred name was Hapi, the same as that of one of the four genii of Amenti (Hades) and of the bull Apis. The probable meaning is "the concealed."

The Nile shows the first signs of rising in Egypt about the time of the summer solstice. At Khartoom, where the White and Blue Niles join, the beginning of the increase is observed early in April. The slowness of the rise in the earlier stage causes this difference. Usually the regular increase does not begin in Egypt until some days after the summer solstice, and the inundation begins about two months after that solstice. The river attains its greatest height at, or not long after, the autumnal equinox, and then, falling more slowly than it had risen, sinks to its lowest point at the end of nine months, when it remains stationary for a few days, until it begins again to increase. The inundation continues rather longer than it naturally would do, because the waters are retained for some time upon the lands by closing the mouths of the canals. The river's banks being a little higher than the rest of the cultivable soil, the water is conveyed by canals or cuttings, and does not pour over the banks.

The inundations vary considerably, and, by either falling or rising to too great a height, cause much damage and distress.

The Nile rises about forty feet at the First Cataract, about thirty-six at Thebes, about twenty-five at Cairo, and about four at the Rosetta and Damietta mouths

during a good inundation. When it is said, however, that the river has attained to a certain height in feet or cubits, the height at the Nilometer of Er-Ródah above-mentioned is meant; and by ancient writers, that of the river at Memphis, which was situate on the western bank, a little higher than Er-Ródah. If the river does not attain a greater height than eighteen or twenty feet, the rise is scanty; it only two or four feet more, insufficient; if it attain to twenty-four feet, or a greater height, not exceeding twenty-seven feet, the inundation is good; but a higher rise must be characterized as a destructive flood.

The cultivable land of Egypt must be regarded as wholly the deposit of the Nile, but it is vain to attempt a calculation of the period at which this process began, since we cannot conclude that the same rate has always obtained, and we must suppose that the causes at first in operation were very different from those which now regulate the phenomenon.

Although some of the accounts of the classics may be deemed exaggerated when they speak of the population and prosperity of Egypt, we cannot accuse them of errors, except in the number of towns and of the inhabitants of the country; for the monuments show us how rich was Egypt under native rulers, and indicate to what causes this condition may reasonably be assigned. From the time at which the great Pyramid was built to the Persian invasion, a period of between 2,000 and 3,000 years, the population of Egypt and its extent of cultivated land far exceeded what they are in the present day. The country does not seem to have been over-peopled; and many causes conduced to prevent this, particularly the serious wars in which the Pharaohs engaged. The long and desolating struggles with the Assyrians and Persians inflicted a severe blow on the interests of the country. Under the Macedonians it recovered much of its former prosperity; and when the Romans held Egypt, it was one of their most productive provinces, and a granary of the empire. During the Roman rule various political causes contributed to the decline of the population. After the Muslim conquest this decay continued almost uninterruptedly until the time of the Fátimées; but from that time until the Turkish conquest the rulers of the successive independent dynasties generally governed the country with a regard for its interests, and cannot be accused of the systematic tyranny and misuse of the Turkish pashas. There was a temporary recovery under the independent or semi-independent Memlook rulers before the French invasion; and in spite of much of the Turkish system the country has again made good progress during the government of the family of Mehemet Ali. To overtaxation, forced labor, and needless wars—in other words, government in a Turkish sense—must be attributed to the present misery of the peasant population, and the want of hands enough to cultivate the soil.

Physical causes have far less to do with the impoverishment of Egypt than political ones. The elevation of the tract north of the Gulf of Suez, with the depression of the north coast of Egypt, has much diminished the cultivable soil in the Delta, by increasing the salt lakes and marshes which occupy its northern portion. There is, however, no greater fallacy than to suppose that the sands of the desert have done injury by encroaching upon the alluvial tracts, and that once fertile regions are buried beneath them. In some places undoubtedly they have encroached upon the cultivable land, particularly where, as in the case of the Red Sea, the neglect of the government had withdrawn the inundation, but no sooner was the Sweet Water Canal opened than fertility returned. On the other hand, the deposit of the Nile has been constantly, in almost every

part of the country, encroaching upon the deserts and diminishing their extent.

Under the government of Mehemet Ali a great engineering work was begun with the view of bettering the condition of Egypt. This was the construction of a barrage across both branches of the Nile at the point of the Delta in order to regulate the inundation, and thus render the country more fertile and easy of cultivation. After being abandoned this work is now to be completed. Its operation will on the whole be beneficial, although undoubtedly the power to be thus acquired by the khedive, of regulating the inundation for the benefit of his lands without reference to small proprietors, will be productive of much injustice. Egypt can never regain her ancient prosperity without a radical reform. The country has been governed under the Turks upon the system of getting the maximum of revenue from a peasantry allowed the minimum of sustenance. This is what is meant by the high-flown phrases one hears about the welfare of Egypt. The welfare of the population has never been contemplated. The frugal peasantry are kept at starvation-point, and no one prospers but the tax-gatherers of all grades, who constitute the richer class.

Under the Pharaohs Egypt was an agricultural country, and both commerce and manufactures were comparatively unimportant. The main energies of the people were expended in turning to the best account a soil of unexcelled richness, annually watered and renewed by the river. This natural policy was the true one for the prosperity of the country. From the sculptures and paintings of the tombs, we form a clear idea of the agriculture of the ancient Egyptians, while the classical writers give us information respecting the tenure of land, and the laws affecting the cultivators.

In the representations of the tombs which picture the daily life of the great proprietors of land, we learn what especial attention they paid to the processes of agriculture. We see them constantly overseeing the laborers, and thus watching the interests of their lands. They were especially anxious to conduct the water of the Nile over those tracts which were not above its level at different periods of the year, and to raise it by manual labor to the higher portions of the land. In their canal-system they displayed mechanical skill, as well as in the construction of dams and dikes to retain the water upon the lands; but for raising water they seem to have been contented with the rudest contrivances. Indeed we know of but two methods that were employed in raising water — the use of the simple machine called in the present day the *shadoof*, and buckets carried by men. The ordinary *shadoof* still employed is of the same form as that used by the ancient Egyptians. It consists of a pole resting upon a beam placed across two columns of brick or mud, and having at one extremity a weight, and at the other a rude bowl-shaped bucket suspended by a stick. A man stands beneath it, and pulling down the bucket to the water raises it again, assisted by the weight.

Immediately after the water of the inundation had subsided, the land was ploughed or broken up by the hoe, and sown, the seed being sometimes trodden in by goats driven over the field for the purpose. Wheat being the most important field-produce, we find the various agricultural processes connected with it frequently represented. Besides the ploughing and sowing, the harvest is depicted, the reapers cutting the wheat just below the ear, the ears being carried in nets or baskets by men or on asses to the thrashing-floor, where they were thrashed by kine. Sometimes the wheat was bound in sheaves. The same or similar processes with reference to other kinds of grain are

portrayed in the tombs, in which we also find curious representations of the vineyards and gardens. The vineyard was not the least valuable part of an estate. Egypt was famous for its vines in the days of the Greeks and Romans; and it is evident that wine must have been prized in earlier times from several kinds being enumerated in the inscriptions, and from its always being seen at the feasts. Besides the vine, other fruit-trees were cultivated, and especially the date-palm. The gardens were often extensive, and were laid out with great formality, partly in consequence of their being watered in the same manner as the fields generally, and contained tanks for fish as well as for purposes of inundation. The Egyptians paid great attention to preserving fish, and the produce of the fisheries of one great artificial lake, that of Mœris, formed an important branch of the revenue. There were also tracts left to weeds, which, if not planted, were at least carefully maintained, on account of their value for manufactures, and as covers for wild-fowl.

The agriculture of the modern Egyptians differs little from that of the old inhabitants. In one respect it is the converse: the ancients excelled in the management of dikes and dams, and raised water only by the simplest methods; the moderns, while they have paid less attention to the great canals, and the means by which they were regulated, have employed more ingenious methods of artificial irrigation. The deficiency of population has partly caused the decay of many of the canals and dams and dikes, and has at the same time necessitated the economizing of human labor, for which that of cattle has been in a great measure substituted.

The culture of cotton was introduced by Mehemet Ali, with a view to promote his manufacturing schemes, and the Turkish *grandes* have found it a source of temporary profit. During the American War the profit was at its height, but subsequently it declined. The necessity of constructing dams to exclude the Nile water from the cotton-growing fields has rendered the inundations destructive, and the speculation seems on the whole to have injured the welfare of Egypt.

The agricultural implements of the modern Egyptians are rude in construction, and similar to those anciently employed in the country. One of these, however, was not known to the earlier inhabitants. This is the *nôrag*, a machine "in the form of a chair, which moves upon small iron wheels or thin circular plates, generally eleven, fixed to three thick axle-trees, four to the foremost, the same number to the hindmost, and three to the intermediate axle-tree. This machine is drawn in a circle by a pair of cows or bulls over the corn." It is employed to separate the grain of wheat, barley, etc., and to cut the straw, which is used for fodder. The ancient Egyptians, as before remarked, generally cut the wheat near the ear.

An Egyptian garden is a miniature Egypt. It is intersected by numerous small channels which are filled by one or more water-wheels. By these channels the water is spread over the garden, divided by them into many square compartments, edged with ridges of earth. This system of course makes it very difficult to keep a garden in good order, and no great variety of flowers is cultivated.

Though Mehemet Ali was very desirous to encourage manufactures, he did not endeavor enough to apply modern science to the improvement of agriculture. Ibrahim Pasha, who succeeded him, always maintained that the country should be agricultural rather than manufacturing, and introduced important improvements during his father's government. This system has been steadily pursued by the present ruler.

Before the time of Mehemet Ali a kind of feudal sys-

tem prevailed, and much of the land was held by small proprietors under the protection of the great emeers. By the massacre of the Memlooks, the pasha destroyed feudalism, and by arbitrarily seizing almost all the landed property, rendered private tenure of land a most rare condition. He allotted to those whom he thus unjustly dispossessed annual pensions for life, as the only compensation for an act of tyranny to which even the history of Egypt scarcely affords a parallel.

Egypt has always been famous for its lakes, which have either aided commerce, or supplied the inhabitants of the country with fish and wild fowl, or with valuable vegetable productions, or assisted in regulating the effects of the inundation. All have enriched the land in some one of these ways, and thus they have been important sources of its natural wealth.

The canals of Egypt deserve especial attention from their great importance in extending the beneficial influence of the inundation. In Lower Egypt we find, beginning from the west, first the Mahmoodeeyeh Canal, which connects Alexandria with the Rosetta Branch, taking a similar direction to that of the ancient canal which it has succeeded. It was dug under Mehemet Ali; and although not quite 50 miles in length, and not 100 feet broad, about 12,000 laborers are said to have died in ten months while the work was in progress.

Between the Rosetta and Damietta Branches are several canals, some of which are of importance, particularly the short canal of Manoof connecting the two branches not far from the point of the Delta. To the east of the Damietta Branch are others, of which the most remarkable occupy the beds of the Tanitic and Pelusiatic Branches, which have been cleared to a sufficient extent to form canals.

The extent and character of the great canal called the Bahr-Yoosuf, or River of Joseph, which runs parallel with the Nile on its western side, from a little below Cairo to near Farshoot, a distance by the river of about 350 miles, render it the most important work of the kind in Egypt. It is a continuous series of canals rather than one canal.

Egypt differs from most other countries in having neither woods nor forests. Besides the palm groves, we rarely see even a grove of trees, except in Lower Egypt. The largest common trees are acacias, sycamore-fig-trees, and mulberry-trees, all of which are frequently planted on each side of the great roads near Cairo; and the most beautiful trees are the date-palm and the banana. The beauty of the palm is, however, in a great measure owing to art, for its lowest branches are annually cut, which causes it to grow high, and renders its head of elegant form. When wild, this tree has a far inferior appearance, being low, and having long ragged branches reaching to the ground; and its dates are small and poor in flavor.

The most common of the fruits are dates of various kinds, which are sold half-ripe, ripe, dried, and pressed in their fresh moist state in mats or skins. Many different sorts are enumerated as known in Egypt. The dependencies, however, and not Egypt, produce the finest of these dates. The hotter and dryer climates of the Oases and Lower Nubia best suit the date-palm; and the pressed dates of Seewah, the ancient Oasis of Jupiter Ammon, are among the most esteemed. The grape is a common fruit, but wine is not made from it on account of the prohibition of Mohammed. The Feiyoom is celebrated for its grapes, and chiefly supplies the market of Cairo. The most common grape is white, of which there is a small kind far superior to the ordinary sort. The black grapes are large, but comparatively tasteless. The vines are trailed on trellis-work, and form agreeable avenues in the gardens of

Cairo; but little attention is paid to their culture, the common fault of Egyptian agriculture and gardening, due to generosity of nature and the indolence of the inhabitants.

The best known fruits, besides dates and grapes, are figs, sycamore-figs, and pomegranates, apricots and peaches, oranges and citrons, lemons and limes, bananas, which are believed to be of the fruits of Paradise (being always in season), different kinds of melons (including some of aromatic flavor, and the refreshing water-melon), mulberries, Indian figs or prickly pears, the fruit of the lotus, and olives. Many of these are excellent, especially the figs and melons. The trees and plants which produce most of them are chiefly confined to the gardens. The cactus bearing the Indian fig is extremely common, and forms the hedges of gardens and plantations.

The vegetables, etc., are very common and of various kinds, so that we cannot wonder that the Children of Israel longed for them in the desert.

The chief field-produce is wheat (which is more grown than any other kind of corn), barley, several sorts of millet, maize, rice, oats, clover, pease, the sugar-cane, roses, two species of the tobacco-plant, and cotton, now largely cultivated. The sugar-cane is extensively cultivated, and excellent sugar is manufactured from it. There are fields of roses in the Feiyoom, which supply the market with rose-water. The tobacco produced in Egypt is coarse and strong compared with that which is used by the middle and upper classes and imported from Syria and Turkey. That of Syria is considered the best. Of textile plants, the principal are hemp, cotton, and flax; and of plants used for dyeing, bastard saffron, madder, woad, and the indigo plant. The intoxicating hasheesh, which some smoke in a kind of water-pipe formed of a cocoa-nut, two tubes, and a bowl, seldom used for any other narcotic, is not, as has been erroneously supposed, opium, but hemp. The effect is most baneful. The leaves of the hinné plant are used to impart a bright red color to the palms of the hands, the soles of the feet, and the nails of both hands and feet, of women and children, the hair of old ladies, and the tails of horses. Indigo is very extensively employed to dye the shirts of the natives of the poorer classes, and is, when very dark, the color of mourning; therefore, women at funerals, and generally after a death, smear themselves with it. Oil is extracted from the seeds of the cotton plant, hemp, colewort, the poppy, the castor-oil plant, sesame, and flax. The high coarse grass called halfeh (*Poa cynosuroides*) grows in great quantity in waste places and among ancient ruins.

Many kinds of reeds are found in Egypt, though, if we compare the representations in the ancient tombs with what we see in the present day, it is evident that they were formerly much more common.

The zoölogy of Egypt is not of remarkable interest, although it contains some very curious points. The absence of jungle and of forest, and the little cover thus afforded to beasts of prey, as well as other wild animals, partly causes this; and we observe few birds of beautiful plumage for the same reason.

The cattle are short-horned, rather small, and, as of old, very beautiful, speaking artistically. They are exceedingly quiet in disposition, and much valued for agricultural labor by the people, who therefore very rarely slaughter them for meat, and then only for the Franks. Buffaloes of an uncouth appearance and of a dark slaty color, strikingly contrasting with the neat cattle, abound in Egypt. When voyaging on the Nile, one often sees them standing or lying in the river by herds. They are very docile, and the little children of the villagers often ride them to or from the river. They

are sometimes slaughtered, but their flesh is tough and coarse. Sheep (of which the greater number are black) and goats are abundant in Egypt, and mutton is the ordinary butcher's meat. Swine are very rarely kept, and then almost wholly for the Franks, the Copts generally abstaining from eating their meat. It appears that the ancient Egyptians, though not forbidden this flesh, rarely ate it, perhaps because it is extremely unwholesome in a hot climate.

The Muslims consider dogs unclean, and therefore those of Cairo and most of the towns are half-wild and without masters, living upon offal, and upon food thrown to them by humane persons. Cats are as numerous in Cairo as dogs, and many of them are as homeless. They are, however, liked by the natives, who assign as their reason that Mohammed was fond of cats. This may perhaps be regarded as a relic of the veneration in which they were held by the ancient Egyptians,

In consequence of a misconception of a passage in Herodotus, and confused notions respecting the inhabitants of Africa, it has been often supposed that the Egyptians were very nearly allied to the negro race. A careful examination of the most distinct data in our possession has, however, produced a far different result; and it is now acknowledged that they were more related to the Caucasian than to the negro type. It has also been shown that the most of the modern inhabitants have preserved many of the characteristics of their ancient predecessors, and that it is, therefore, erroneous to suppose that they are chiefly of Arab origin, although the intermixture of Arab blood has so much changed the national type that it would not be safe to describe the earlier people from the appearance of the present. Nevertheless, one is often struck, among the remains of ancient monuments, by the similarity of an early representation to some one of the natives standing by, priding himself upon an Arab origin, and repudiating the reproach that he is of the race of Pharaoh.

Judging from the monuments and mummies, the countenance of the ancient Egyptians was oval, and narrower in the case of the men than of the women. The forehead was small and somewhat retiring, but well-shaped; the eyes large, long, and generally black; the nose rather long, and with a slight bridge; the mouth expressive, with rather full lips, and white and regular teeth; the chin small and round, and the cheek-bones a little prominent. The hair was long, full, crisp, somewhat harsh, and almost always black. The beard was worn in so artificial a mode that one cannot judge whether it was full or not. The skin of the men was dark brown; that of the women varied from olive to pink flesh-color in different persons. The color of the women was natural, and the darker hue of the men the result of exposure to the sun, and the scantiness of their clothing explains why their faces were not darker than the rest of their bodies.

The dress of the ancient Egyptians did not much vary at different periods. Under Dynasty IV. it was, however, simpler than under the Empire. As most monuments remain of the Empire, the dress of the inhabitants at that time will be described, and this description will apply, in its main particulars, to the earlier and later times of their ancient history.

The men of all classes either had shaven heads, with skull-caps, or wore their own hair, or wigs, very full, and in numerous plaits or curls, falling to the shoulders, but sometimes much shorter and in the form of a bag; there is, indeed, reason to suppose that the practice of shaving the head was universal, except among the soldiers.

The king was distinguished from his subjects by the richness of his apparel. His head-dress was sometimes

his own hair, or the wig, alone; and at others he wore the high crown of Upper and Lower Egypt, the former being a kind of conical helmet, and the latter a short cap with a tall point behind, worn outside the other.

The ordinary costume of men of the upper and middle classes was the same as that of the king, the short kilt, with sometimes the long shirt or skirt of fine linen above it, tied in various forms. Their beards were very short, scarcely exceeding an inch in length, and of a formal square shape, and they wore the full hair or wig, or a skull-cap. They generally went barefoot, but sometimes used sandals. The priest was occasionally clad in a leopard's skin, either tied or thrown over the shoulder, or worn as a shirt, the fore-legs forming sleeves. Military personages are often represented with helmets, and sometimes with short coats or corslets of plate-mail. The royal princes were distinguished by a side-lock apparently curiously plaited.

The men of the lower class wore the kilt and girdle alone, or, especially when engaged in laborious work, went altogether naked. They shaved their head and face, and had no head-covering but the skull-cap. The soldiers had kilts of different kinds, and coats or corslets of plate-mail, and either wore full hair or helmets.

The dress of the queen consisted of a tight skirt, descending to the ankles, supported by shoulder-straps, and bound at the waist by a girdle, with long ends falling in front. Over this was usually worn a full suit of fine linen, with wide sleeves reaching below the elbows, and having a broad skirt falling to the ground. It much resembles the upper dress of the king, or of men of the richer classes. The queen was distinguished by her head-dress, which was in the form of a vulture with outspread wings, the bird's head projecting over the forehead, and the wings falling on either side, while the tail extended behind. Sometimes the queen is also known by the royal asp above her forehead, and at other times she is represented with various forms of head-dress. The queen also wore sandals.

The dress of ladies was the same as that of the queen, without the distinguishing ornaments, but they frequently appeared in the under garment or skirt alone. The women of the lower class wore that garment only, and sometimes it was much shorter than that of the ladies, particularly when they were engaged in manual labor. The women's hair was worn in the same manner as the men's, but it was of greater length, usually reaching about half-way from the shoulders to the waist, being rarely longer, and sometimes much shorter. It was ornamented in various ways, but the general form was always the same.

The children of all ranks were very simply dressed, when clad at all, though those of rich persons were sometimes attired as their elders. Boys were distinguished by the side-lock, which the princes, as before mentioned, wore in a peculiar fashion.

Religion.—The credit which the Egyptian priests enjoyed in antiquity for a knowledge of philosophy led to the expectation among modern scholars that, when hieroglyphics were read, the world would recover a lost body of human speculation. The first results disappointed this expectation, but later studies have gone far to justify it.

Had the Egyptians any idea of one God?—In other words, is their religion a complex structure raised upon a recognized monotheistic foundation? They speak of one supreme being, self-existent, self-producing, the creator of heaven and earth, called the double god or double being, as the parent of a second manifestation. From the idea of a supreme deity, at once father and mother, producing a second form, probably originated the first triad like the triads of father, mother, and son.

quent in Egyptian mythology. To the local divinities the attributes of this supreme deity are given, as though they were mere personifications: that they were originally so is, however, not certain.

A very ancient moral tract, the papyrus of Ptah-hotep, composed under Dynasty V., although a purely Egyptian work, mentioning Osiris and a divinity who may be a form of Osiris, yet speaks constantly of God as if the author had the idea of one God.

The Egyptian notions as to the cosmogony are too closely identified with mythology to be very clearly defined. It seems, however, that they held that the heavenly abyss was the abode of the supreme deity, who there produced the sun and the moon as well as the rest of the Pantheon.

The worship of the Egyptian deities was public and private—that of the temples and that of the tombs. Every town had at least one temple dedicated to the chief divinity of the place, with certain associated gods, and usually, if not always, a living symbol in the form of a sacred animal supposed to be animated by the chief local divinity. The services were conducted by priests, and on occasions by the king, and by scribes, who sometimes formed a college and lived at the temples, the various duties of which required the services of learned men. It is probable that the common people had a very small share in the religious services, the most important of which took place in the smaller inner chambers, which could never have admitted many worshippers.

The worship in the tombs was not local. It was always connected with Osiris or a divinity of the same group, and had the intention of securing benefits for the deceased in the future state. It took place in the chapel of each tomb of the wealthy; and though properly the function of the family, whose members officiated, the inscriptions invite all passers-by, as they ascend or descend the Nile, overlooked by the sepulchral grottoes, to say a prayer for the welfare of the chief person there buried.

The sacrifices were of animals and vegetables, with libations of wine, and burning of incense. Human sacrifice seems to have been practiced in early periods. The monuments do not mention it, but Manetho speaks of its having been abolished, at least at one place, by Amôsis, no doubt the first king of Dynasty XVIII.

In the long course of ages the Egyptian ideas as to the future state seem to have undergone changes, not in themselves, but in the manner in which they were regarded. The vast labor expended on the Pyramids, and their solid simplicity, are in striking contrast with the elaborate religious representations of the tombs of the kings of Dynasties XIX. and XX. So, too, the sculptures on the walls of the tombs of subjects of the earlier kings, representing the everyday life of duty and pleasure, give place to funereal and religious scenes in the later periods. These were fashions, but they show the changed mood of the national mind.

The government of Egypt was monarchical. It was determined as early as the rule of Dynasty II., according to Manetho, that women could reign. Accordingly we find instances of queens regnant. Their rule, however, seems to have been disliked, and they are passed over in the lists made under Dynasty XIX., when, it may be observed, the royal family seems to have been affected by Shemite influences. The royal power can scarcely have been despotic, although under certain kings it became so. It is sufficient to compare Assyrian and Babylonian with Egyptian history and documents to perceive a marked difference. The earliest monuments indicate a powerful local aristocracy holding hereditary functions. Those of the Empire (Dynasties

XVIII.–XX.) scarcely indicate any such class. Even the princes are no longer a royal clan, but the children of the reigning sovereign. The whole system of government rests with the king, who appoints all the functionaries and dismisses them at his pleasure. Hence arose a vast and corrupt bureaucracy, to which the decay of Egypt may have been mainly due. At all times the country was governed by nomarchs and lesser officers. In the earliest period these were local magnates whose office was at least sometimes hereditary, and whose interest it was to promote the welfare of their districts. Under the Empire governments seem to have been mere places of profit given by favor and held by force and corruption, according to the Turkish method.

The laws were administered by judges appointed by the king. It is certain that commissions for an occasion were thus formed. We do not know that there were judges appointed for life; but it is probable that such was the case, as it must have been the duty of a class to be thoroughly acquainted with the written laws. A legal scribe may, however, have been attached to each commission. All the particulars of each case, though not necessarily submitted in writing, were recorded, and the decision was written. The process was conducted with great care, and the culprit examined on his oath. The punishments probably were not extremely severe. For murder, but not for manslaughter, death was the penalty. Adultery was severely punished, perhaps rather by custom than by law. Theft was rigorously prosecuted. For sacrilegious theft the criminal was punished with death. The laws relating to debt are not yet well known. They appear to have been complicated by a system of loans and pawning, and to have been subject to modifications. Of the tenure of land we know little. The temple-lands seem to have been held in perpetuity, and this was probably the case with private domains in the earliest period.

Army.—We know little as yet of the organization of the Egyptian army, but much of its arms and mode of conducting warfare. It consisted from very early times of foreigners as well as Egyptians. The Egyptian troops seem to have been a military caste, though not in the strictest sense, and to have had certain lands allotted to them. There were two main divisions of the army—a chariot-force, in which each chariot contained an archer and a charioteer, and was drawn by two horses; and a force of foot-soldiers variously armed, chiefly heavy infantry, armed with shield and spear, sword, axe, or mace, and light infantry, with bow, and axe or falchion, as well as slingers. It may be noticed that flint-tipped arrows were used in the chase. We know nothing of the military maneuvers, but it is evident that the troops were drilled to move in formations, and that the art of besieging was as well understood as by the Assyrians, in the mode of attacking the enemy's fort as well as in that of protecting the soldiers.

Manners and Customs.—The subjects of the walls of the Egyptian tombs and the hieratic papyri tell us much of the domestic life of the ancient people. The education in the earliest age seems to have been more manly and more simple than in that of the Empire, when the college of a temple or the miniature court of a great officer was the school instead of the estate of the landed proprietor. This system, however, gave almost his only chance of advancement to a poor man's son, for the very highest posts were open to the successful scholar. Circumcision was practiced from the earliest times, but apparently not as a religious rite, and not until the earlier years of childhood had passed. Of the education of girls there is no indication, but, as

they afterward shared the public life of men, and even held posts of importance in the priesthood, it could not have been neglected. It has not been proved that the Egyptians had any definite marriage law. We find, however, that they married but one wife, who is termed the lady of the house, and shares with her husband the honors paid to the deceased. Concubinage was no doubt allowed, but it is seldom that we find any trace of children more numerous than those of legitimate wives could be. The family of Ramses II, is an instance of an Oriental household, and the fifty-two children of Baba, whose tomb is found at Eilethya, may also be cited, though the term children may in this case include other descendants.

Ordinarily the aspect of the family is that which it wears in civilized countries. The women were not secluded, and, if they did not take the place of those of republican Rome, it was due to faults of national character rather than the restraints of custom. There was no separation into castes, although many occupations were usually hereditary. As there was no noble caste, there was nothing to prevent the rise of naturally able persons, but the growth of the official class, which gradually absorbed all power and closed the avenues to success. The corruption of this class has been remarkably shown by the researches into the Egyptian administration of justice by M. Chabas, who cites lists of robbers of tombs and houses containing the names of scribes and priests, besides a higher grade of servants. The lower class being uneducated, and for the most part very poor, was held in contempt by the higher, and this was especially the case with laborers and herdsmen. All handicrafts were considered unworthy of a gentleman, and even the sculptor and painter were not raised above this general level. The only occupations fit for the upper class were priestly, civil, and military, and the direction of architectural and other works which required scientific knowledge, not skill of hand. The servants were of a higher grade than the laborers: not so the slaves, who were generally captives taken in war.

The every day life of the ancient Egyptians is abundantly represented in the pictures of the tombs from the earliest monumental age to that of the Empire. The rich passed much of their time in hospitality, giving feasts at which the guests were entertained in various ways. The host and hostess sat together, as did other married people, and the other men and women generally were seated apart. The seats were single or double chairs, but many sat on the ground. Each feaster was decked with a necklace of flowers by the servants, and a lotus-flower was bound to the head, on which was also placed a lump of ointment. Small tables were set before the guests, on which were piled meat, fruits, cakes, and other food, and wine-cups were carried round. Before the repast, hired musicians and dancers entertained the company, and often this seems to have been the sole object of invitation. These two kinds of entertainment are precisely what are customary at the present day in Egypt. Among the amusements of the ancient Egyptians was witnessing the performance of various gymnastic feats. They had several games, one of which probably resembled draughts. Under the old kingdom the chief occupations of the rich seems to have been those of a country life, in its duties, the superintendence of husbandry, of the taking stock of flocks and herds, and of the shipment of produce, and the examination of fisheries, or again in seeing to the efficient work of the people of the estate who were engaged in any craft; and the pleasures of country life filled up the leisure.

Language and Literature.—The language of the

people was the Egyptian, the later form of which, after they had become Christians, is called Coptic. Comparative philology has not yet satisfactorily determined its place. There can be no doubt that it is related to the Semitic family, but it has not yet been proved to belong to it. The grammatical structure is distinctly Semitic, and many roots are common to the Semitic languages. On the other hand, the Egyptian has essential characteristics which detach it from this family. It is monosyllabic, and its monosyllabism is not that from which scholars have endeavored to deduce Semitic, but rather such as would belong to a decayed condition. This monosyllabism is like that of Syriac. The Coptic is written with the Greek alphabet, with the addition of six new letters and a ligature, these letters being taken from the demotic to express sounds unknown to Greek. For further details see the article **HIEROGLYPHICS**.

Much ancient Egyptian literature has come down to us, and it must be allowed, that, from a literary point of view, it has disappointed expectation. What it tells is full of interest, but the mode of telling rarely rises to the dignity of style. So unsystematic is this literature that it has not given us the connected history of a single reign, or a really intelligible account of a single campaign. The religious documents are still less orderly than the historical. It is only by the severe work of some of the ablest critics during the last fifty years that from those disjointed materials a consistent whole has been constructed.

Fresh information is being constantly acquired as to the knowledge of science possessed by the ancient Egyptians. Their progress in astronomy is evident from their observations, and still more from the cycles they formed for the adjustment of different reckonings of time. Their knowledge of geometry is attested by their architecture, and by a document on the lands of the temple of Adfoo; and the annual inundation must have made careful surveys and records necessary for the preservation of landed property. Very great mechanical skill must have been needed to move the vast blocks used in their buildings, sometimes for very long distances, in part by difficult land-routes, and then to place them in position. Considering the want of iron, and of any but the very simplest mechanical appliances, the achievements of the Egyptian architects are an enigma to modern science. Chemistry and metallurgy had also made great progress. The hardening of the bronze tools with which they cut granite is a proof of this, and the manner in which Moses destroyed the golden calf is another evidence. Medicine and surgery were much studied, and the Egyptians were in those sciences only inferior to the Greeks.

Arts.—Of the arts architecture claims the first place, sculpture and painting being subservient to it among the Egyptians. Temples were not built to contain statues, but statues were set up to adorn temples, of which they were a part, and the walls were covered with sculptures and paintings which had a decorative purpose. The group of these arts may therefore be considered as a whole, and thus the principle they expressed may be best discovered. This principle seems not to have been accidental, but a deliberate choice. The country and climate afforded the best means of symbolizing the leading idea of the Egyptian religion in the material forms of art. Life after death was that idea, and it found expression in the construction of tombs as lasting as the rocks on which they rested. The pyramid is the first form of Egyptian art, and modifications of its form, in truncated pyramids, are seen in the main outlines of all later edifices or excavations. The decorations were subordinated to the idea of commemoration, and thus

every building was at once religious and historical in its purpose.

The Egyptians had a great variety of musical instruments, the number of which shows how much attention was paid to the art. Various kinds of harps are represented, played with the hand, and of lyres, played with or without the plectrum, and also a guitar. There are other stringed instruments, for which it is difficult to find a modern name. The Egyptians had also flutes, single and double pipes, the tambourine of various forms, cymbals, cylindrical maces, drums of different kinds, beaten with the hands or sticks, the trumpet, and the sacred sistrum. The military music was that of the trumpet, drum, and cylindrical maces; but almost all the instruments were used in the temple services. It is impossible to form any conjecture as to the character of the music, unless we may suppose that with many of the old instruments the modern inhabitants have preserved its tradition.

Ceremonies.—We know little of the private festivities of the ancient Egyptians. In particular no representation of a marriage ceremony has yet been discovered on the monuments. The greatest ceremony of each man's life was his funeral. The period of mourning began at the time of death, and lasted seventy-two days or a shorter time. During this time the body was embalmed and swathed in many linen bandages, the outermost of which was covered with a kind of pasteboard, which represented the deceased, in the form we call a mummy, as a laborer in the Elysian fields, carrying the implements of husbandry, the face and hands being alone seen, and the rest of the body being painted with subjects relating to the future state, and bearing a principal inscription giving the name and titles of "the Osiris, justified." The viscera were separately preserved in vases having covers in the forms of the heads of the four genii of Amenti. The mummy was inclosed in a case of wood having the same shape, and this was again inclosed, when the deceased was a rich man, within either another wooden case, or more usually a sarcophagus of stone, sometimes of the same form as the mummy, but generally rectangular, or nearly so. The mummy was then placed on a sledge, drawn by oxen or by men, and was frequently taken to the bank of the river, or the shore of a sacred lake, which was to be crossed in order to reach the place of burial. A sacred boat carrying the mummy, attended by mourners, was towed by another boat, and followed by others containing mourners, offerings, and all things necessary for the occasion. On reaching the tomb the sarcophagus was placed in a sepulchral chamber, usually at the bottom of a pit, and offerings for the welfare of the deceased were made in a chapel in the upper part of the tomb. One tomb sufficed for each family, and sometimes for some generations; and in the case of the less wealthy, many were buried in the sepulchral chambers of a single pit, above which was no structure or grotto.

The traditional age in Egypt is extremely obscure. History begins with the First Dynasty. The earlier period with Manetho, who is supported by the Turin Papyrus, is mythological, the age of the divine reigns, an idea also traceable in the monuments which treat certain divinities as sovereigns. This age is held to be spoken of on the monuments as that of the Shesu-har, the servants, followers, or successors, of Horus, who, in mythology, aid him in his combats with Seth. Manetho completely divests the time of any historical character by making it cyclical. It might be supposed that the Egyptians had some idea of records actually dating from this age, if we could accept M. Chabas' reading of the Ptolemaic inscription relating to the plan of the temple of Dendarah, in which it is stated that the origi-

nal plan was found in the time of Pepi, of Dynasty VI., in ancient characters on a skin of the time of the Shesu-har. It appears, however, from the context that this inscription was of the time of Khufu, of Dynasty IV., and consequently the parallel expression is merely used to denote remote antiquity.

Egyptian mythology has not been found to contain any allusion to a deluge, nor to have any connection with the Mosaic narrative in reference to the cosmogony and the early conditions of the human race. Similar terms have been pointed out, but the leading facts are wanting. Thus the Egyptian ideas of their prehistoric age have a strange isolation by the side of those of most other nations of remote civilization, which agree in one or more particulars with the narrative of Genesis. Discoveries may, however, modify this view.

In Egypt stone implements have been recently discovered. Owing, however, to the abundance of historical monuments, the prehistorical remains have scarcely received due attention. We do not yet know whether these implements were used by the Egyptians or by savage tribes who may have made incursions into their territory. We find, however, the use of flint arrow-heads in the historical period from the paintings at Benue-Hasan (Dynasty XII.)

It is impossible to conjecture the duration of the prehistoric age in Egypt. M. Chabas has proposed a space of 4,000 years before the First Dynasty as sufficient for the development of the civilization which had already attained maturity in the time of the Fourth Dynasty. We are, however, so entirely ignorant of the causes of this civilization, and so unable to decide how far it was native to the soil of Egypt, that it is safer to abstain from any attempt to compute a period of the length of which the historical Egyptians themselves do not appear to have had any idea.

With Menes, in Egyptian Mena, the "stable," the history of Egypt begins. It is true that Manetho states cautiously of his successors of the Second Dynasty certain things that are evidently legendary. This must be the natural result of a want of monumental evidence, and a consequent dependence on tradition. At present no monuments are known before the time of the last king of Dynasty III., and this may be the limit at which inscribed contemporary records began. It is, however, agreed by all Egyptologists that the founder of the Egyptian state is no legendary personage. All we know of him wears the air of history, and is consistent with the conditions in which a state would have been formed. Menes was of Thinis, in Upper Egypt, and consequently the first two dynasties are called Thinite. Thinis, or This, or in Egyptian Teni, was perhaps only a quarter of the more famous Abydos. Certainly it was obscured by the near neighborhood of the sacred city. Menes, having gained the sovereignty of Egypt, which probably before his time was divided into two states, founded the city of Memphis. In order to gain sufficient room for the site he changed the course of the Nile by constructing a dike, which turned the stream more to the east. M. Linant believes that this dike is probably represented by that of Kusheish. The great temple of Ptah, at Memphis, was then founded; and there can be no doubt that the seat of government was under Menes, or not much later, removed to the new city. Menes made laws and waged a successful war. After a long reign of sixty-two years he was killed by a hippopotamus.

Athothis, either Tota or Atot, the first or second successor of Menes, is related to have founded the palace at Memphis, and, being a physician, to have written anatomical books. A medical papyrus in the Museum of Berlin, composed under Ramses II. (Dynasty XIX.),

curiously illustrates the second statement. It contains a portion said to have been copied from a very ancient papyrus discovered in the time of Hesp-ti, or Usaphaidos, a later king of the First Dynasty, and to have been subsequently taken to Senta, or Sethenes, of the next line. Under Uenephes, the fourth Thinite king, a great famine, the first recorded, ravaged Egypt. He is also said to have raised the pyramids near Kochoh. As Kakem is the monumental name of the part of the Memphite necropolis around the Serapeum, and north of the Pyramid of Steps of Sakkarah, Doctor Brugsch and others are disposed to consider that pyramid, which is a very archaic structure among pyramids, to be here intended. The use of the plural, "pyramids," by Manetho does not stand in the way of the identification, as we know a case in which a small pyramid was built at the same time as a large one. We do not know the original purpose of the monument. Under the early dynasties it was used as the burial-place of the bulls Apis. As, however, their worship was introduced under Dynasty II., it may have been at first a royal sepulcher, like all other pyramids of which we know the use. Under Semempses, the seventh king of the dynasty, Manetho speaks of many wonders and a very great plague. Thus the two chief scourges of Egypt appear in this remote age, suggesting a large population, and consequently the length of the period preceding the accession of Menes.

With Boethos, or Butau, the Second Dynasty begins. Manetho relates that in his time a great chasm opened at Bubastis, and many perished. Frequent as volcanic shocks are in Egypt, it is long since an earthquake has been experienced in that country. There are, however, reasons, from the manner in which monuments have fallen and the records of earthquakes in Palestine in antiquity, for supposing that Egypt was anciently more subject to such calamities than in later times. The next king, Kaiechos, Kakau, introduced the worship of the bulls Apis at Memphis, and Mnevis at Heliopolis, and of the Mendesian goat, and his name appears to commemorate these innovations, probably a necessary step owing to the increase of population, for animals locally worshipped were thus restricted in number. We also notice that already Heliopolis and Mendes, besides Thinis, Memphis, and Bubastis had been founded. Under the next king, whose name, Binothris, Bainnuter, was probably commemorative of the new worship at Mendes, we read that a law was passed that women could hold the sovereign power.

The royal house now changed by the accession of Dynasty III., the first of Memphites. Manetho relates how, under its head, Necherophes or Necherochis, the Nebka of the monumental lists, the Libyans revolted from the Egyptians but returned to their allegiance terrified by a sudden increase of the moon. It is useless to speculate on the character of the phenomenon which, unless it be legendary, was probably an eclipse; but the glimpse we thus obtain of an Egyptian dominion beyond the Nile valley at this remote age is most valuable. In Genesis the Lehabim, or Lubim, appear as a race kindred to the Egyptians. In the Egyptian inscriptions they are called Rebu, or Lebu, and appear on early monuments as a dark people. Under the Empire they have Caucasian characteristics. The change was probably due to the great maritime migrations of the Pelagic tribes, in which the Libyans had an important share. To the next king, Tosorthros, Manetho assigns the invention of building with hewn stones and cultivation of letters, and says that for his medical knowledge the Egyptians called him Æsculapius. If the Pyramid of Steps dates from an earlier king, the first statement must be qualified, though it is to be remarked that the difference of constructive skill between that monument,

if so early, and the works of Dynasty IV., would almost justify the historian; and again the discovery of inscriptions of a less accurately ordered kind than those of Dynasty IV. may support the second statement; the third seems at variance with the Memphite worship of the Egyptian Æsculapius, Imhotep. On the monuments contemporary history begins with the last king the lists assign to this dynasty, Senoferu, probably Manetho's last but one, Sephuris. We may now take a retrospect of the age. It is in some respects curiously primitive in comparison with that which immediately follows it. Doctor Brugsch has remarked the general absence in the kings' names of the name of Ra, afterward essential to throne-names, which from the medallion character of some of these they seem to have been, and the equally general absence of the names of other gods. Ra occurring once in the three dynasties and Sekeri once. Again he has observed the somewhat plebeian aspect of these names, as proper to men who sternly ruled the masses. Mena is "the stable," he who resists; Tota, "he who strikes;" Senta, "the terrible;" Huni, "he who strikes." Senoferu is "the betterer." As the "striker of the peoples," for so he is called in his inscription at Wadec Magharah, in the Sinaitic peninsula, he is a foreign conqueror.

From Senoferu, at the close of Dynasty III., to the end of Dynasty VI., we have a succession of contemporary monuments by which history can be reconstructed, not only in its political events, but in those details of the condition of the population which make an essential part of all real history. Under Senoferu, we find great material prosperity, and the arts already in that condition of excellence which makes the Pyramid age, in some respects, the most remarkable in the annals of Egypt. Senoferu the Betterer left a good name as a beneficent king, and his worship was maintained until the Ptolemaic period.

Khufu, the Suphis I. of Manetho and Cheops of Herodotus, immediately succeeds Senoferu in the lists of the monuments, so that he may be regarded as the legitimate head of Dynasty IV. The list of that dynasty is as follows:—Khufu, Rataf, Khafra, Menkaura. Shepseskaf, corresponding to eight kings in Manetho, in whom also the order is different, Rataf (Ratoises) following Menkaura (Mencheres), a natural consequence of the association, in fame, of the builders of the three most celebrated pyramids, Khufu, Khafra, and Menkaura.

The age of the pyramid-builders is the most brilliant before the Empire. We can judge, from the royal tombs, of the magnificence of the kings, and from the sepulchers around of the wealth of the subjects. The construction of the pyramids has, perhaps, been unduly marveled at; we should know in what other manner the kings employed the vast amount of manual labor at their disposal, if we would estimate how much they could have effected by it in pyramid-building in the long period of time for which they ruled. If the two reigns of Khufu and Khafra extended over more than a century and a quarter, we may measure what we know them to have done against the works of other states during a like interval, and the comparison reduces our wonder.

The reign of Khufu is principally marked by the building of the Great Pyramid. We learn, from a curious inscription of a later date, that he rebuilt the temple of Isis, near the Sphinx, carved out of the rock by some earlier king, and that he made a pyramid for the Princess Hent-sen, in the same neighborhood.

The next family, Dynasty V., continued to rule at Memphis. Of its sovereigns, we know but little. The last but one, Assa, is the first Pharaoh whom we know

to have had two names, the throne-name, as well as the ordinary one. The last king, Unas, varied the form of royal tombs, by constructing the great truncated pyramid now called Mastabat-Faraon, or Pharaoh's Seat, north of the Pyramids of Dahshoor.

The Sixth Dynasty was probably a family of a different part of Egypt. It has left many records which indicate less centralization at Memphis than those of the earlier sovereigns, and mark the beginning of wars for predatory purposes and extension of territory. This change is accompanied by a less careful style of sculpture, and less pains in the excavation of the tombs, as though the Egyptians were gaining a larger horizon, or, it may be, exchanging religion for ambition. The interest of the dynasty centers in the undoubtedly long reign of Pepi, second or third king of the line, and the inscription of Unas. In this inscription we first read of great wars, and foreign conquered nations are spoken of by name. A military system had already begun, for we read how the king sent, with Unas, an officer and soldiers to transport a sarcophagus for the royal tomb from the quarries of Turā.

With the latter part of Dynasty VI. the second great chasm in Egyptian history begins, and we have no monuments to guide us until the time of Dynasty XI. According to Manetho, Dynasties VII. and VIII. were of Memphites, and IX. and X. of Heracleopolites, the Diospolite or Theban line comprising Dynasties XI., XII., and XIII. Whether the dynasties which intervened between the VIth and XIIth were contemporary or successive, and how much time they occupied, cannot yet be proved. In the *Tablet of Abydos*, a series of kings unknown from other monuments follows Dynasty VI., and precedes two kings of Dynasty XI. In the Chamber of Kings of El-Karnak other and earlier kings of Dynasty XI. are named, with curious indications that it was first but a local line. To the period of the earlier kings of Dynasty XI. belongs Entef-aa, who reigned at least fifty years.

With Dynasty XII. the Theban line was firmly established over all Egypt. In the circumstances referred to in the *Instructions* of Amenemhat I., its first king, to his son, Usurtesen I., we have a glimpse into the unquiet condition of the country when the line arose. Similarly the custom of associating the heir apparent as king with his father, the peculiarity of this dynasty, indicates the dangers that then surrounded the throne.

It is to the grottoes of Benee-Hasan that we owe most of our knowledge of the manners and arts of Egypt under Dynasty XII., and much of its history is there told in the memoirs of a family of governors under the first five kings of this house. No one can have examined these beautiful tombs without being struck by the advance in architecture which they show, and the evidence of prosperity and cultivation afforded by their paintings. The subjects resemble those of the tombs of the earlier dynasties, but there is a greater variety, partly due to a more luxurious condition of society, partly to a more flexible art. It is sufficiently evident that the preceding dynasty (XI.) cannot have been weak, and the country under its rule distracted. A time of prosperity must have preceded this bright period of Egyptian history.

Under Usurtesen I., the co-regent and successor of Amenemhat I., Egypt had reached its highest prosperity after the age of the pyramid-builders of Dynasty IV. The obelisk which still marks the site of Heliopolis, a fragment of a statue at Tanis, inscriptions on the rocks of the Sinaitic peninsula, and a stele from Wādee Halfeh, recording foreign conquests in the south, now in the Naples Museum, attest the splendor of this reign. The

records of private individuals are, however, its most instructive memorials.

Of Amenemhat II. and Usurtesen II., the next kings, there is little to relate but that Egypt continued to prosper. It was under Usurtesen III. that a great step in advance was made by the fixing of the boundaries of the Egyptian dominion beyond the Second Cataract, at Semneh and Kummeh, where this king built sanctuaries and fortresses, and placed great boundary-marks in the form of tablets. His successor Amenemhat III. is chiefly famous for his great engineering works. That care which the first Amenemhat bestowed on the regulation of the inundation seems to have been the great object of his reign. The rocks of Semneh and Kummeh bear registers of the height of the Nile in several years of his reign. His great enterprise, the most successful of its kind ever carried out in Egypt, was the construction of a vast artificial reservoir, Lake Moëris, in the province now called the Feiyoön, which received the waters of the Nile by a canal, and after the inundation spread them over the country. Its fisheries were also very valuable. Through the neglect of ages the site of Lake Moëris was forgotten until, in our time, M. Linant traced it. Near the lake, Amenemhat III. built the famous Labyrinth, of which the remains were discovered by Doctor Lepsius during the Prussian Expedition to Egypt, and there raised a pyramid. The use of the Labyrinth is unknown; the pyramid was no doubt the royal tomb. Most interesting discoveries concerning this period have recently been made by Mr. Petrie who, in February, 1889, was about examining the pyramid known as the Pyramid of Illahun. For in the vicinity of that pyramid stands the pyramid chapel. Its position is defined by a large, square area containing a deep bed of limestone chips, among which have been found innumerable scraps of fine sculpture and beautifully painted hieroglyphs. The boundary walls are still traceable. Granite, as well as limestone, was employed in the superstructure; but Mr. Petrie has found evidence to show that the place was pulled to pieces in the time of Rameses II., and the granite removed to build a sanctuary at Heracleopolis (Ahnasel-Medinet).

Founded by Usurtesen II. about 2960 B.C. and razed to the ground by Rameses II. some 1,500 years later, it was the strange fortune of this ancient site to be used for a Christian cemetery during the fifth and sixth centuries of our era. In excavating the bed of chips Mr. Petrie came upon a series of interments (dated in one instance by a coin of Heraclius), which like other recently discovered cemeteries of late periods, prove to be rich in textile treasures. Owing to the extreme dryness of the spot these Illahun specimens are in a state of admirable preservation, many being still quite sound, and even wearable. Like the dead of the Ekhmeem and Ila-wara burial grounds, the pious Copts here laid to rest were clad each "in his habit as he lived," and apparently in the best that he possessed. One especially sumptuous garment of a thick and fine woolen material is described as having broad purple bands woven on a green ground, the purple bands being elegantly embroidered by hand with white thread. Round the neck, sleeves, and hem it is trimmed with a broad red band, also embroidered with white thread, the effect being singularly rich and harmonious. Nor was this all. Barren as it looked, the site had yet more secrets to disclose.

Below the Christian graves, below the lowest layer of limestone chips, in a square hole sunk in the rockbed of the desert, Mr. Petrie discovered the foundation deposits of Usurtesen II. This hole, cut just in the center of the temple area and fitted with a square block, attracted his attention. He removed the block, not with-

out difficulty, and found another below it, the first being about fifteen inches thick and the second one foot. Both were cut with rope grooves for lowering into place. The second block being extracted there appeared a bed of mixed sand and stone flakes about a foot in depth, and below this again a mass of smashed pottery, four pairs of sandstone corn rubbers, eight bronze knives with pointed blades, eight with ordinary blades, four small chisels, four large chisels, four bar chisels, four ax heads, four pieces of ore, and twelve strings of exquisite carnelian beads, uniform in size and color, and of the richest translucent red. The threads have long since rotted away, but the beads lay in lines upon the sand at the bottom of the hole, like rows of red currants.

Their presence is inexplicable, unless such beads were recognized articles of barter, requiring a fixed amount of labor to produce them, as gold does now. Beads being still objects of African barter may point to this, and these may be the earliest examples of bead money yet discovered. Or, again, some mystic meaning may have attached to beads which wholly escapes us. It is altogether most strange, especially for such a glorious period as the Twelfth dynasty. Here we have the constant element of the corn rubbers, also the model tools, hitherto found only in Ptolemaic deposits, none being found with deposits of the Twenty-sixth dynasty, and deposits of the Eighteenth and Nineteenth dynasties containing full-sized tools, with inscriptions. Here are no plaques of any material, no inscribed objects, no mortars, no bones of sacrifice—only these puzzling strings of beads. The ores are three specimens of earthy carbonate of copper and one of sulphide of zinc or tin, probably the latter. If so, it will be of great interest to identify the site of such ore, as showing whence the Egyptians got their tin at that early date.

Adjoining and built square with the pyramid temple are the remains of a town of the same period. Inclosed in a boundary wall, this little town is symmetrically laid out in parallel rows of storehouses and chambers, the chambers being planned to round numbers of cubic measurements, as 2x5, 4x8, and the like. The whole was quite evidently built at one time, and was in all likelihood destined for the architects, artists, workmen, and officials employed in the construction of the temple and pyramid. Rows of chambers somewhat similarly built and supposed to be workmen's quarters are found elsewhere, and notably near the great pyramid of Gizeh. No previous traveler seems to have visited the ruins of this interesting little settlement at Illaûin, and even the Arabs do not appear to have plundered it. That the chambers were occupied in the first instance by workmen is proved by the discovery of masons' tools in some and carpenters' tools and plasterers' tools in others. These probably migrated when the pyramid and temple were completed, but the town continued to be inhabited, apparently by a mixed population, down to the beginning of the Thirteenth dynasty.

Thus for the first time a complete, untouched, and unincumbered settlement of the Twelfth dynasty is brought to light. Foot by foot, chamber by chamber, Mr. Petrie has cleared this place from end to end. He has found the domestic objects of families who lived and labored and died more than forty-eight hundred years ago. He has discovered how their houses were decorated and furnished. He has come upon curious traces of their manners and customs; and he has found dozens of invaluable papyri of this remote and important period, not more than five or six Twelfth dynasty documents being previously known. Some of these papyri are still rolled up and sealed with clay impressions of scarabs of early patterns, and one fine specimen, consisting of eleven lines and one column, is sealed

with a large clay seal of an official of one of the Amenemhats. Even more interesting is the discovery in one house of a "rubbish heap" of papyri, consisting of three nearly perfect documents, and fragment of a large number of others. They are apparently accounts, all in ruled columns and lines, exquisitely neat, and in a beautiful, clear hand, many of the entries being in red. The old Twelfth dynasty cemetery belonging to this town extends for some distance round the base of the pyramid. The graves, however, had all been plundered in ancient times, and the ground subsequently reoccupied from the Twenty-first to the Twenty-fifth dynasty—i.e., from about 1100 B.C. to 700 B.C.

With the accession of Dynasty XIII. we reach the third chasm of the Egyptian monumental records. This line, Theban like its predecessor, but with a special favor for Middle Egypt, seems to have ruled all Egypt. Its power, however, was evidently weakened, either by external war or by internal dissension. Many monuments may have been lost or may yet lie hid in the mounds of towns in Middle Egypt, but the scantiness of records of public works is a proof of its weakness. Where are its tablets in the quarries? In the Turin Papyrus are preserved the lengths of several reigns of its kings, who generally bore the names Sebek-hotep or Nefer-hotep. The longest reign is thirteen years, and but one other reaches ten, the total of thirteen reigns being but forty-eight years twenty-two days, and six sums of months and seven of days effaced. Putting the total at fifty years, the allowance for each reign is under four years. This must have been a time of disturbance, but not necessarily of disastrous wars; for if we compare the rule of the second line of Memlook sultans we obtain an average reign of five years each. This we know to have been the consequence of domestic disturbance, and not of great public disasters at home or abroad. Dynasty XIV., of Xoites, the next in Manetho's list, is the first which had certainly its capital in the Delta. Beyond this fact we can only conjecture its importance and chronological place.

The invasion and conquest, at least in part, of Egypt by the Hyksos, or Shepherd Kings, is undoubtedly the chief cause of the obscurity of this age. The event did not happen until at least some time after the beginning of Dynasty XIII., for the eighteenth king of that line in the Turin Papyrus, who bears the significant name Mermesha, "the general," has left a record at Tanis near the eastern frontier, which was probably the chief city of at least one dynasty of the invaders.

Manetho, as cited by Josephus, allows for the stay of the foreigners in Egypt a period of 511 years, which has been supposed to be about the interval between Dynasty XII. and Dynasty XVIII., by which they were expelled. This number, however, rests upon the single evidence of Josephus, and is moreover probably made up of sums of dynasties, which would render its evidence doubtful. A better means of measuring the period would be afforded by the monumental evidence that a Shepherd king ruled 400 years before Ramses II. could we place this foreign sovereign. All that can be said as to the chronology is that Dynasty XV. and XVI. were probably of Shepherds, and Dynasty XVII. was certainly Theban. Judging from the numbering, it is probable that there was a break in the Theban succession, and that the two Shepherd dynasties were successive, the Xoites perhaps being but a provincial line.

The beginning of Dynasty XVIII. (B.C. 1600-1500?) is marked by two great events, the union of divided Egypt under one head, and the victorious end of the great war with the Shepherds. Aahmes, probably a

Theban prince, appears to have secured the supreme rule over the various princes of Egypt, without abolishing their rights, and to have gained Ethiopian support by his marriage with Nefru-ari, daughter of a King of Ethiopia. He then directed his whole power to the final liberation of Egypt. The tomb at Eilethia of Aahmes son of Abuna, an officer of the Egyptian flotillas, in an inscription relating his services, throws light on the events of this war. He passed his early youth in the fortress of Eilethia, one of the strong positions where the kings of Dynasty XVII. rallied their subjects. In the reign of Aahmes he was made officer of the ship called the *Calf*. Later he went to the flotilla of the north to fight. It was during the siege of the fortress of Avaris. He served in the vessel *Ruling in Memphis*, a name no doubt given to commemorate the addition of the ancient capital to the dominions of Aahmes. An engagement took place on the water near Avaris. Subsequently Avaris was taken, and the young officer carried off three captives, whom the king granted him as slaves. This was in the fifth year of Aahmes; in the next we read of the conquest of Sharuhan, the Sharuh-en of the Book of Joshua, in the southwest of Palestine. The memoir then adds that, after having slain the Shepherds of Asia, the king undertook a successful expedition against an Ethiopian country.

From the time of Aahmes till the close of Dynasty XX. we may reckon the rise, fullness, and decay of the Egyptian Empire. It is a period of abundant monuments, sculptured and painted, and of many papyri, rich in records of the history, manners, and religion of Egypt. The state of the country may be glanced at in this place, where the Shepherd period closes, so as not to break the continuity of the subsequent history.

The sudden growth of prosperity at home and power abroad which marks the early reigns of Dynasty XVIII. is truly surprising. The Egypt of Dynasty XVII. is broken up and only slowly reuniting; that of Dynasty XVIII. is at once solidly bound together, and soon to engage in designs of world-dominion never hinted at in earlier times. These conditions were the result of a great national war, in which the country discovered her hidden force, and was not content to use it only so far as was needful to make a strong Egypt like that of Dynasty XII. Having conquered her foreign rulers at home, she desired to add their native lands to her own dominions. The first effects of these designs were the enrichment of Egypt. In the earlier reigns of this house the wealth of the subjects, as of the king, rapidly grew. From the simple monuments of Dynasty XVII. and the first kings of Dynasty XVIII. there is a sudden advance to richness and splendor. Egypt was, however, becoming a military state. The king is constantly more powerful, and his public works more magnificent; the subjects, notwithstanding the luxury of individuals, have not that solid princely strength that we admire in those of the Pyramid Kings and Dynasty XII. The appearance of the horse under this dynasty is most significant. The beasts of burden, the ox and ass, now yield in importance to the war-horse, and the landed proprietor journeys in his car, whose ancestor went afoot, staff in hand. Thus the military man succeeds the farmer. The priest is no longer a great man who has assumed sacerdotal functions, but one of a class immensely extended, reaching from the highest dignitaries, one of whom, strengthened by hereditary power, could at last seize the throne, down to the menial class who lived upon the superstitions of the people. To carry on the government there grew side by side with soldiers and priests a vast official body, clever, ambitious, and unscrupulous, which rapidly, on the true bureaucratic principle, in-

volved the administration in an entanglement which must have mainly led to the decline of the Empire. Justice, which was difficult at home, must have been almost impossible abroad. We now cease to hear of hereditary monarchs studying the welfare of provinces to which they were attached by ancestral connection. All posts went by the royal favor. The common people fared ill in this age. Their function was to supply soldiers for the army and navy, and at first to take their share in the construction of public works; their only hope was to rise in the official class. Handicrafts and all labor were beneath a gentleman; hence no one could rise to his grade but through success at the schools, which were open to every one, and where a boy of talent had his chance of a career.

The art of this age is in some respects the finest Egypt produced; it is, perhaps, best about the time of Thothmes III. and Amenophis II., the middle of Dynasty XVIII. It is inferior in naturalism to the art of Dynasty IV., and in delicacy to that of Dynasty XII., but it has a certain splendor before wanting. After it had attained its highest point it slowly declined, partly from a decay in the vigor of the national character, perhaps more from the vast size of the later monuments, which must have led to a neglect of finish in the details, though this neglect can only be seen by one who is thoroughly acquainted with the Egyptian styles. At all times there is an invincible patience in the mastery of material and the execution of detail. The temples, not the kings' tombs, are now the largest and most costly edifices; though a compromise with the old idea is effected by making grand temples as sepulchral chapels in religious connection with the royal tombs, commemorating in their sculptures the events of the reigns. The tombs of subjects do not maintain the proportion the earlier ones hold to the royal sepulchers. Their paintings have less of daily life, and religion takes a greater and growing place on the walls. We have, however, a multitude of interesting scenes, which show us a life more luxurious in the many than that of earlier times, but not as splendid in the few. There is more of feasting, of music, and the dance, less of country life and the welfare of the retainers. The royal tombs are now grottoes deeply cut in the rock, and the pictures of their walls are religious, the historical part being left to the funereal temples.

Amenhotep or Amenophis I., son of Aahmes and his Ethiopian queen, carried on the Ethiopian wars. It is of his son, the next king, Thothmes I., that the great eastern campaigns are first recorded. Before his death Thothmes I. had associated with him on the throne his daughter Hatshepu, or Hatasu, who succeeded him with her elder brother and husband Thothmes II.

Hatshepu had reigned about twenty-one years when Thothmes III. succeeded her. He carefully effaced her name on the monuments, substituting that of his brother and his own, and reckoned his reign from her accession. Whether he thus included his brother's reign or not we do not know. With the sole reign of Thothmes III. a series of great expeditions begins, from the records of which we have great insight into the condition of Syria and Palestine about the fifteenth century B.C.

Great buildings commemorate this active reign, and we have a glimpse of the personal character of the king in the eccentric architecture of one of his additions to the temple of Amen-ra at Thebes. After a reign of fifty-four years eleven months, reckoning from the accession of Hatshepu, Thothmes III. was succeeded by his son Amenophis II.

The accession of the new king was marked by a war in Assyria, in which he captured Nineveh. An incident

of his eastern campaign is remarkable for its Oriental barbarism. He brought back to Egypt the bodies of seven kings whom he had slain with his own hands. The heads of six were placed on the walls of Thebes; the seventh was sent to remote Napata in Ethiopia to be hung on the walls to strike terror into the negroes. After a prosperous but probably short reign, Amenophis II. was succeeded by his son Thothmes IV., of whom we only know that he maintained his father's empire during a reign that probably did not exceed nine years assigned to him by Manetho.

Amenophis III. succeeded his father, and, during a long and it seems mainly pacific reign, occupied himself in great architectural works. Two temples at Thebes owe their origin to him, that on the western bank, which was the funereal temple of his tomb in the western valley beyond, and of which little now remains but the two great statues in the plain, the Vocal Memnon and its fellow, and also the temple of El-Uksur on the eastern bank. Probably he was the first of the family after Aahmes who took a foreigner to wife. On the great scarabæi which commemorate his marriage with Queen Tai, we are informed that his rule extended from Mesopotamia to Southern Ethiopia.

Amenophis IV., the son of this foreign marriage, is the most perplexing character in ancient Egyptian history. Under his mother's influence he introduced a new religion, the worship of Aten, the solar disk, and after a time wholly suppressed the national religion, even changing his name to Khu-n-aten. Abandoning Thebes as the capital, he founded a new city in Middle Egypt, where he constructed a chief temple to Aten, and near which his officials excavated their tombs in the mountain. The type under which the king and his family and subjects are represented is unlike any other in Egyptian art. They are all of emaciated and distended figure, and surpassing ugliness. The king is treated with a servile respect nowhere else seen on the monuments.

Khu-n-aten had seven daughters and no son. His successor AI was his foster-brother and the husband of his eldest daughter. Under him the national religion was tolerated. Two other sons-in-law succeeded. Their line then, or soon after, came to an end, on the accession of Har-em-heb, or Horus, who claimed to be the legitimate successor of Amenophis III., either by descent or on account of the innovations of Khu-n-aten, who with the kindred kings does not appear in the monumental lists, in which Har-em-heb is seen as the immediate successor of Amenophis III.

Another family gained the throne after the reign of Horus, that of the Ramessides, forming Dynasties XIX. and XX. Ramses I., who seems to have been of Lower Egyptian extraction, and not impossibly connected by ancestry with the Shepherd kings, seized the royal power, maintained his authority abroad by campaigns in the south and the east, and concluded a treaty of peace with the king of the Hittites. After a very short reign he left the crown to his son Setee I., or Sethos, who strengthened his rights by marrying Tai, a granddaughter of Amenophis III. Ramses II., the son of this marriage, thus became legitimate king, and Setee made him his colleague at a very early age, no doubt to conciliate the Egyptians, a position at first ignored, evidently owing to the difficulty of defining it, but which ended in the virtual abdication of Setee.

Ramses II. is without doubt the greatest figure in the long line of the Pharaohs, and at the same time he is the one of whose character we have the best idea. His early training was in war and in government, for it cannot be a pure figure of speech by which the tablet found near Dakkeh, in Nubia, says that when he was

but ten years old no monuments were executed without his orders.

Menptah succeeded Ramses II. There are but few monuments of his reign. The principal event they relate is a great incursion into the Delta of the maritime nations of the Mediterranean allied with the Libyans. By this time the Pelagic tribes had wrested the dominion of the sea from the Phœnicians. Some causes, perhaps famines, had already disposed them to move from Asia Minor and the Greek islands, seeking new establishments in Egypt.

Menptah was not immediately followed by his son Setee II. There intervened two reigns, those of Amenemes and Siptah, the first of the Ramses family by descent, the second, apparently, by marriage. They appear to have been of a branch holding a local principality. Setee II. succeeded them, and restored the legitimate line. His reign closed in anarchy. There was no longer one king: the chiefs of the nomes ruled and engaged in civil war. A worse period followed. A Syrian, Arisu by name, became chief of the nomarchs, society was dissolved, and the temple-services neglected. We are as yet unable to say how this revolution began. It seems to have had nothing to do with foreign wars, but to have been brought about by internal weakness. The time it lasted must have been long, according to the Papyrus of Ramses III., from which alone we know of it. There "many years" are assigned to the period of the nomarchs, and "years" to the rule of the Syrian.

As the Exodus is now generally held to have occurred in the later years of Dynasty XIX., its place in Egyptian history may best be here noticed. The view referred to was first carefully worked out by Prof. Lepsius. It rests upon chronological and historical grounds. Manetho, apparently adopting a tradition, placed the Exodus in the reign of Menptah. The number of generations assigned in the Bible to the interval from the Exodus to Solomon would bring the former event to about the same time. This approximative date is in accordance with that of the Rabbinical chronology, B.C. 1314-13. The coincidence is, however, valueless, for the interval from the Exodus to the building of Solomon's Temple, in the Rabbinical chronology, is that of the Hebrew text, 480 years. The date of the Exodus should therefore be about B.C. 1480. The difference between 1480 and 1314-13 is caused by an error in the date of the building of the Second Temple, which is put B.C. 354, only forty-six years before the date of Alexander's death, which is dated B.C. 308, or fifteen years too late. There is thus a mistake of more than a century in so cardinal a date as the building of the Second Temple. If an event of this importance, occurring only 800 years before the drawing up of the chronology, is thus incorrectly dated, and a period of Jewish history obliterated, surely the date of the Exodus cannot rest upon any accurate information. The historical grounds are far stronger than the chronological. Manetho, relating, if we may trust Josephus, a current tradition, and Josephus has given an account of the Exodus from an Egyptian point of view. As Manetho tells us, the chief points are these:—

King Amenophis, identified by him with Menptah, who occurs in his lists as Amenophis and Ammenephthis, determined, under the advice of a priest of the same name as himself, Amenophis the son of Papis, to cleanse Egypt of all lepers and other unclean persons, whom, accordingly, he set to work in the quarries. On their petition he gave them the city Avaris, left in ruins by the Shepherds. Having occupied the city, they chose one of themselves, a priest of Heliopolis, by name Osarsiph, as their ruler, who changed his name to

Moyses. He made laws particularly directed against the Egyptian religion, and sent messengers to Jerusalem to the Shepherds, who had been expelled by the Egyptians, asking their aid and promising to give them their old territory Avaris, and to assist them to subdue Egypt. Accordingly the Shepherds invaded Egypt, when Amenophis came against them, but for superstitious reasons did not fight them, and withdrew to the friendly King of Ethiopia, in whose country he remained thirteen years, his ally protecting the southern Egyptian border. Meanwhile the people of Jerusalem and the unclean Egyptians ravaged Egypt, and destroyed everything connected with the national religion. Afterward Amenophis and his son Sethos, also called Rameses, returned and expelled the Shepherds and the unclean people. Chæremon gives a similar account with the same name for the king. Lysimachus and Tacitus vary in calling the King Bocchoris.

The Egyptian evidence for the date of the Exodus would place it about this time. The geographical inquiries of Lepsius have been carried on by Brugsch, who has identified the principal geographical names of the narrative of the oppression and of the Exodus. In particular, Rameses is shown to have been another name of Tanis. The occurrence of this name in Genesis and Exodus is most important as bearing on the date of the Exodus, for it is almost certain that it was given by Rameses II., who rebuilt the great temple of the town.

Set-nekht, a chief probably of the line of Ramses II., overthrew the Syrian intruder and again restored the Egyptian monarchy. His short reign, which begins Dynasty XX., was probably entirely occupied in reorganizing the administration of Egypt. Ramses III., whom his father had already made his colleague, succeeded to a united Egypt but a distracted Empire. Evidently in the time of anarchy every province and tributary state had fallen away. The new king was equal to the effort of repelling invasion at home and reconquering lost territory abroad.

The historical value of the Egyptian notices of the primitive populations of the Mediterranean is being more and more perceived. It is at first perplexing that we find the nations afterward settled in well-known seats either far to the east or in constant movement. Yet the key thus afforded to the earliest Greek colonization is most valuable, and it is significant of the historical character of the documents that new names appear, as we should expect, in such a manner as to explain the confusion of the Greek terms, which speak of Achæans and Danaï, Dardans and Teucri, at the same time indifferently, whereas the Egyptian documents show that they are not interchangeable. Ramses III., besides constructing the magnificent temple at Medinet Haboo, enriched the temples of Egypt with splendid gifts, during a prosperous reign of thirty-two years. The later kings of the dynasty do not appear to have achieved anything remarkable. They maintained the Empire, but their authority at home waned, while that of the high-priests of Amen grew until, toward the close of the dynasty, Herhar, one of these high-priests, gained the royal power. Probably the close of the dynasty was occupied by a struggle between the last Ramesside kings and the high-priests, as well as by the additional distraction caused by the rise of another line, Dynasty XXI., of Tanite kings. Probably the Tanites ultimately gained the sole authority. The high-priests of Amen-ra, about this time, certainly not later than the rise of Dynasty XXII., retreated to Ethiopia, where they founded a kingdom, of which the capital was Napata. The Pharaoh whose daughter Solomon married was, if Manetho's numbers are correct, Psusen-

nes II., Har-Psiunkha, last king of Dynasty XXI. He seems to have endeavored to restore the military power of Egypt, for he made an expedition into Canaan and captured the town of Gezer, which he gave to his daughter, Solomon's queen.

During the later period of the Empire, partly through marriages of the Pharaohs, partly in consequence of the large employment of mercenaries, chiefly Libyans, great settlements of foreigners, Asiatic as well as African, were established in Egypt. So far from the Shemites being then disliked, a multitude of Semitic words were introduced into Egyptian, and it even became the fashion to give a Semitic form to native words. A Shemite family, settled at Bubastis, or in the Bubastite nome, succeeded by the command of mercenaries and by alliances with the Tanite family in establishing a new royal line, Dynasty XXII., which is remarkable for its foreign names. The royal names Sheshonk, Osorkon, Takelot are all either Assyrian or Babylonian. Still more striking is the name Nemrut, or Nimrod, borne by non-kingly members of the family. Probably it came from the further East. The invasion of Shishak is ordinarily dated B.C. 971, but may thus have to be lowered to about B.C. 948; and as it probably took place in about the twentieth year of the Egyptian king's reign, his accession may be dated approximately B.C. 967.

The government of Egypt under the kings of Dynasty XXII. underwent an important change. They made the high-priesthood of Amen-ra an office of a prince of the family, usually the eldest son, and gave high governments to other princes. Thus the power of the Pharaoh ultimately became merely nominal, and Egypt resolved itself into an aggregate of principalities. A further cause of decay was the importance of the Libyan mercenaries which each of the princes commanded. Under a new dynasty, XXIII., said to be of Tanites, but probably kindred to the Bubastites, Egypt was, for a time at least, reunited under a single rule, but toward its close the process of disintegration had already again set in, and the country was divided among nearly twenty princes, at least four of whom took the royal insignia.

Among these small princes but one was capable of attempting to reunite Egypt under his rule. This was Tafnekht, Tnephachthos, prince of Sais who reduced a great part of the country, and would probably have achieved complete success, had not the yet unconquered princes called in the priest-king of Napata, Piankhi Meriamen. While Egypt had declined, Ethiopia had constantly risen, and at this time part of the Thebais owed its allegiance. Piankhi, the descendant of the priest-kings of Thebes, was not unwilling to recover his ancient dominions. In one brilliant campaign he defeated Tafnekht and his allies, captured their strongholds, and obtained the sovereignty of Egypt, leaving the small princes to rule as his vassals. The ancient Empire was thus in part restored, but as it was ruled from Ethiopia, and the little princes constantly strove for independence, it had no real durability. Piankhi was succeeded by Kashta, who was probably an Ethiopian, owing his throne to his intermarriage with a princess of the Theban line.

Bokenranf, or Bocchoris, son and successor of Tafnekht, no doubt seizing this occasion, was able to carry out the project of his father and make himself king of Egypt. After a short reign marked by energy and prudence he perished in a fresh Egyptian invasion. Shabak, or Sabakon, conquered Egypt, and having taken Bokenranf in his capital, Sais, put him to a cruel death. It was no longer an Egyptian prince who ruled at Napata; all the circumstances we know of Shabak and his dynasty indicate an Ethiopian line, governing Egypt as a conquered country, not as their ancient territory.

Still Shabak's connection with the priestly line was not forgotten. His sister, Queen Ameniritis, governed Thebes, and the power of the local rulers was limited, not destroyed. Hoshea, King of Israel, sent presents to Shabak, who was subsequently drawn into a confederacy of Syrian and other princes against Sargon, King of Assyria, but, as in all these wars, the Ethiopian king was a tardy ally. His capital lay too far south, and in crossing the eastern border of Egypt he left the ill-affected princes of the Delta in the line of his communications. He, therefore, came into the field too late, and it was but little east of Egypt, that he met the Assyrians and experienced a disastrous defeat at Raphia. He lost a great part of Egypt, in which the small princes again established themselves, now as vassals of Assyria, Shabak only retaining Ethiopia and part of Upper Egypt.

Shabatak, or Sebichus, was the son and successor of Shabak. He made himself supreme king in Egypt, but appears to have lost Ethiopia to Taharka. Toward the close of his reign the Egyptian dynasties joined in an alliance against Sennacherib, who had recently succeeded Sargon. The confederates were defeated, or made their submission one by one.

After a time the Egyptian princes became independent of Assyria, but they had once more to submit to an Ethiopian invader, Nouat-Meiamen, who reconquered the country without much difficulty, but does not seem to have long held it. The Saïte Prince Psametik, whose ambition excited the jealousy of the other dynasties, at last achieved the object for which his predecessors had pertinaciously fought. By the aid of Carian and Ionian mercenaries he put down his rivals, and by a marriage with the niece of Shabak rendered his line legitimate. This alliance with a princess only a generation younger than the first Ethiopian king brings into striking relief the vicissitudes which Egypt underwent during the Assyrian wars. Calamities were crowded into those years which usually occupy centuries. Yet under the new king, who was the real founder of Dynasty XXVI., Egypt rapidly recovered, and during the rule of his successors it was for the first time since the Empire strong and united, enjoying a true national existence. Public works of all kinds were carried on with energy.

Psametik I., or Psammetichus, employed his long reign in strengthening Egypt and in restoring the temples and making additional monuments. He recovered from Ethiopia a part of Lower Nubia, and made a successful expedition into Philistia. His designs of conquest were, however, frustrated by a wholesale desertion of Egyptian troops, caused by jealousy of the Ionian and Carian mercenaries, to whom Psametik owed his throne. The mutineers, whose number Herodotus puts at 240,000 men, were too strong to be resisted, and deaf to the king's entreaties marched to Ethiopia, and received lands from the king of that country. All that the Egyptian sovereign could do was to form a new army and build a fleet. He thus missed the opportunity afforded by the decline of Nineveh of winning back the influence Egypt had long lost in the East. An interesting memorial of his reign is the Greek inscription on one of the colossi of Aboosimbel, in Nubia, recording the visit of mercenary and Egyptian troops.

Neku II., B.C. 611, son and successor of Psametik, inherited his father's energy but not his prudence. He attempted to complete an enterprise of the Empire and connect the Red Sea with the Nile, and so with the Mediterranean, by a canal. Under his orders Phœnician seamen circumnavigated Africa. Less fortunate was his attempt to recover the eastern rule of Egypt. He marched against Megiddo, still the key to the route to the Euphrates. Here he was met by the forces of Josiah,

King of Judah, with whom he unwillingly fought. Josiah was slain, and the king of Egypt advanced to Carmeish on the Euphrates. Thus the Egyptian Empire was for a moment restored. There was no great eastern rival to contest its supremacy. Assyria had fallen, Babylon was not yet firmly established. After about three years Nabopolassar, the King of Babylon, sent his son Nebuchadnezzar against the Egyptians. At Carmeish the armies met. Neku was defeated, and the Egyptian rule in the East finally destroyed. Soon after the king of Egypt died, leaving his throne to his son Psametik II., B.C. 595, whose short reign was only marked by an expedition against the king of Ethiopia. The next king, Psametik's son, Uahabra, or Apries, the Pharaoh Hophra of Scripture, B.C. 590, inherited the energy and ambition of the Saïte house. His accession was the signal for a general confederation of Palestine and Phœnicia against the king of Babylon. The war was speedily ended by the capture of Jerusalem, which Uahabra in vain endeavored to prevent. He was, however, successful at sea. His Greek ships beat the Phœnician fleet of Nebuchadnezzar, and for a time he held the Phœnician coast, and aided Tyre in a resistance of thirteen years against the Babylonian besiegers. A great disaster lost Uahabra his throne. He engaged in a war with the Greeks of Cyrene. His Egyptian troops were defeated. The native soldiers believed that he had planned their destruction that he might put mercenaries in their place. They revolted and chose Aahmes, or Amasis, king. Amasis defeated the mercenary troops of Uahabra and dethroned him, B.C. 571. It is to this time that the conquest of Egypt by Nebuchadnezzar is assigned by Josephus. The scantiness of the native records of Nebuchadnezzar's reign leaves us without Babylonian evidence.

Amasis took to wife a granddaughter of Psametik I. and his heiress-queen Shapentap, thus legitimatizing his pretensions. He greatly embellished the temples of Egypt. It may be that, as in the time of Psametik I., they needed restoration. His foreign policy was marked by energy and caution. He transferred the Ionian and Carian mercenaries to Memphis itself as a force of guards. He granted the Greeks the free use of Naukratis as a Hellenic settlement and trading port. He conquered Cyprus, and kept up the influence of Egypt in Phœnicia. He had friendly relations with the Greek states, and instead of conducting an expedition against the Babylonians during their Empire or against the rapidly rising power of the Persians, he joined in an alliance of which Crœsus, King of Lydia, was the head, and agreed to furnish him with an Egyptian contingent in his war with Cyrus. After the fall of Crœsus other wars kept Cyrus from any designs on Egypt, and it was not until the accession of his son Cambyses that the Persians could attempt its reduction. Meanwhile Amasis died, leaving the crown to his son Psametik III., the Psammenitus of Herodotus, who, after a single well-fought battle near Pelusium, and the capture of Pelusium and Memphis, lost his kingdom, B.C. 525.

Cambyses, as we learn from the narrative of the Egyptian priest Uta-har-sun of Saïs, at first adopted the style of a Pharaoh, and was initiated into the mysteries of Neith at Saïs. It was not until the failure of an expedition against the Oasis of Ammon, and of another directed by himself against the Ethiopian kingdom of Napata, that Cambyses, probably aware of the satisfaction the Egyptians must have felt at these reverses, changed his policy, and vented his rage upon the monuments and objects of worship in Egypt. The Saïte priest, in general terms, describes this as a time of calamity such as had never before befallen his country. Cambyses left Egypt, which was so completely crushed

that the subsequent usurpation of the Magian was marked by no revolt. One of the first cares of Darius I. was to charge Uta-har-sun with the restoration of the disordered country. In a visit to Egypt at the moment when a revolt had broken out, he pacified the people by supporting their religion, in the most marked contrast to Cambyses. For the rest of his reign he endeavoured to promote the commercial welfare of Egypt, in particular opening the canal from the Nile to the Red Sea. In the Great Oasis he built a temple to Ammon. It was not until the very close of his reign that the Egyptians rose against his rule, and expelled the Persians, choosing as king Khabbash, whose name has been discovered in the Sarapeum. The revolt lasted but three years, and Xerxes I. suppressed it with severity. Achaemenes, the brother of Xerxes, was made satrap. Egypt did not again rise until the troubles which marked the accession of Artaxerxes I. The insurrection was led by Inaros, Prince of Marea, who immediately concluded an alliance with the Athenians. The causes of the downfall of Egypt are sufficiently evident in the previous history. The weakness of the later Thebans fostered divisions. The Bubastites aided the natural tendency of the country to break up into small principalities. The Ethiopians, while they brought a new force to resist the Assyrians, increased the divisions of Egypt, which had to choose to which of two foreign empires it would submit. The Saites restored nationality, but they maintained it at the cost of alienating the native troops, and thus could not effectually resist Persia. Although their gallant struggles brought out the fighting qualities of the Egyptians, these Pharaohs could never venture on a great war without Greek mercenaries. Hence constant discontent and an inharmonious military system. At length the native energy was worn out.

The barbarian Ochus used his success mercilessly, rivaling the worst acts of Cambyses. Under him and his successors Egypt made no movement, and when Alexander entered the country as the conqueror of Persia he was welcomed as a deliverer.

On the division of Alexander's dominions, Egypt fell to the share of Ptolemy, son of Lagos and Arsinoë, a concubine of Philip's, whose son he was supposed to have been. Of all Alexander's generals he was the most far-sighted. Instead of aiming at the rule of the empire, he secured the least exposed province, and employed its resources rather for defense than offense. One of his first acts was to divert the burial of Alexander from Macedon to Egypt. The body was taken to Memphis, but under Ptolemy's successor it was removed to Alexandria, so that the conqueror rested in the city he had founded.

Ptolemy Philadelphus ruled for thirty-eight years of almost undisturbed peace. His half-brother Magas, probably soon after the death of Ptolemy Soter, declared himself king in Cyrenaica, and attempted to invade Egypt. Ptolemy remained on the defensive, and at last a treaty was signed by which Ptolemy, heir of the Egyptian crown, and Berenice, heiress of Cyrenaica, were betrothed, Magas retaining the power if not the name of king. Philadelphus was also fortunate in recovering Phœnicia and Cœle-Syria. This probably took place not much before B.C. 266, for that is the earliest date in the series of coins struck at Tyre during his reign.

Ptolemy Evergetes, son of Philadelphus and Arsinoë I., by his accession, B.C. 247, reunited the Cyrenaica to the Egyptian empire. A quarrel between Egypt and Syria immediately broke out. The Syrian king, Antiochus II. had married a daughter of Philadelphus. She was now put away, and, as well as Antiochus, murdered

by her rival, his first wife Laodice, who set up her son Seleucus II. Ptolemy invaded Syria, which he speedily subdued, and then following the traditions of Egyptian conquest, he passed the Euphrates and reduced the whole of the eastern dominions of Seleucus. He returned to Egypt with vast treasures, including the statues of the gods which Cambyses had carried away, and which he restored to the temples. At sea he was equally fortunate, and the maritime territories of Egypt in the eastern Mediterranean were greatly enlarged. For a moment the old Egyptian Empire was again revived in larger proportions, extending from the Thracian coast to Ethiopia, from Cyrene to the border of India. The eastern provinces speedily returned to the Syrian rule, and Ptolemy was content with a moderate accession of territory on that side. He, however, retained his Greek conquests and pushed far south in Abyssinia. Having reigned twenty-five years he left his kingdom to his son.

Ptolemy Philopator, who began to reign B.C. 222, immediately on his accession put his mother, Berenice, and others of his nearest kindred, to death, and leaving the management of the state to Sosibius, abandoned himself to luxury. Antiochus III., king of Syria, seized the opportunity to wrest from Egypt all the eastern provinces. Ptolemy at length took the field himself in defense of Egypt, and defeated Antiochus at Raphia, where his success was greatly due to the courage of Arsinoë III., his sister and wife (B.C. 217). By this victory Cœle-Syria and Phœnicia were recovered. Ptolemy returned to his former life, and Arsinoë was put to death. He left his kingdom, greatly weakened by bad administration and growing disaffection, to a child, Ptolemy Epiphanes. The other two Macedonian kings, Philip V. and Antiochus III., now allied themselves to despoil Egypt of the provinces. Everything but Cyprus and Cyrene was taken, and the Egyptian ministers only saved the country by having called in the aid of Rome. The Republic had long been friendly to the Ptolemies, and nothing suited her policy better than a protectorate of Egypt. Accordingly M. Æmilius Lepidus was sent as regent to Alexandria, and Antiochus was commanded to restore what he had conquered. It was finally settled that Ptolemy should marry Cleopatra, daughter of the Syrian king, and that she should take back Cœle-Syria and Phœnicia. From this time Rome ruled Egypt with reference to her own eastern policy. The kingdom of the Ptolemies was not allowed to fall, but it was kept within the most moderate limits. Consequently the weak kings were supported and the strong kings thwarted in every way. Egypt could not rid herself of a bad ruler or enjoy the full advantage of a good one. The rest of the minority of Ptolemy was marked by a serious revolt in Lower Egypt, put down with great difficulty. In B.C. 196, when but thirteen or fourteen years old, the young king was crowned at Memphis, when the decree of the Rosetta Stone was issued. The marriage of Ptolemy and Cleopatra I. took place B.C. 193-2, but the dowry was not handed over. Ptolemy continued true to the Romans in their war with Antiochus, but was not allowed to act as their ally, and gained nothing in the subsequent treaty. Another revolt broke out in Lower Egypt, and was cruelly suppressed, B.C. 185. Ptolemy perished by poison in B.C. 181, leaving two sons surnamed Philometor and Evergetes, who ruled Egypt in succession. Epiphanes inherited the weakness and cruelty of his father, and with him Egypt lost for a time her influence in the affairs of the world.

Cleopatra I., who like Berenice II. was queen as heiress, now became regent for Ptolemy Philometor, and ruled well until her death, about B.C. 174. The

ministers then made war on Antiochus IV. (Epiphanes) for the disputed provinces. The Egyptian forces were defeated, Egypt invaded, and Ptolemy seized (B.C. 170). His younger brother, Euergetes II., with an audacious courage that marks his whole career, declared himself king at Alexandria, where Antiochus besieged him in vain, and Roman ambassadors interfered for his protection. Antiochus retired, leaving Philometor as a king at Memphis. The two brothers now made terms, agreeing to a joint rule. Antiochus again invaded Egypt, and marched to Alexandria, but was forced to retire by the resolution of a Roman ambassador, M. Popilius Laenas (B.C. 168). From this time Egypt was more than ever in the hands of the Romans, and in consequence of the manner in which Philometor had yielded to Antiochus while Euergetes had resisted his pretensions and depended on their support, we find them constantly aiding Euergetes, whose abilities, if equal to those of Philometor, were weighed by a perfidious and cruel disposition. It was not long before Euergetes succeeded in driving Philometor from Alexandria. The fugitive went to Rome B.C. 164, and the senate agreed to reinstate him. Euergetes was spared by his brother, and the Roman deputies obtained for him the kingdom of Cyrene, where he occupied himself in ceaseless plots to obtain Cyprus, assisted by the active support of Demetrius I. of Syria and the unjust diplomatic aid of the Roman senate. Philometor had the courage to oppose his brother, who invaded Cyprus with Roman ambassadors ordered to settle him in the government of the island. Philometor defeated and took him prisoner, but again spared his life, and left him the kingdom of Cyrene (B.C. 154). The Romans did not interfere with this settlement.

The part Demetrius I. had played in the war in Cyprus led Philometor to take the side of the usurper Alexander I. (Balas), to whom he gave his daughter Cleopatra to wife (B.C. 150). When Demetrius II. endeavored to recover his father's kingdom Ptolemy advanced to the support of Alexander, but thinking him treacherous, he turned his arms to the aid of the legitimate king. Rapidly subduing the country, Ptolemy entered Antioch and was hailed king of Syria, to the crown of which he had a claim as descended maternally from the Seleucid line; but he admitted the higher right of Demetrius, whom he aided in resisting an invasion by Alexander. In a decisive victory Ptolemy was thrown by his horse and mortally injured (B.C. 146).

It was in the reign of Philometor that Onias founded the temple at Onion in Egypt, which tended to increase the importance of the Jewish colonies and to separate the Alexandrian from the Palestinian school.

With this king the power of Egypt finally fell. He was the last Ptolemy who had the capacity to rule amidst the growing difficulties of the time. In his wars he showed courage and generalship, in his dealings with Rome caution and decision, in his rejection of the Seleucid diadem moderation and justice, in his treatment of his brother and his subjects an extraordinary clemency and humanity.

Cleopatra II., the sister and widow of Philometor, put their son on the throne. Euergetes at once marched from Cyrene to Alexandria. The Romans as usual took his part, and stopped the war on the condition that Euergetes should marry his brother's widow. The young king was instantly put to death. Ptolemy reigned as he had begun: Alexandria was depopulated by his cruelties, though the rest of Egypt seems to have fared better in consequence of his want of ambition. He divorced Cleopatra II. to marry her daughter, his niece, Cleopatra III. In B.C. 131 he was driven out of Egypt by a revolt, and Cleopatra II. became queen. In re-

venge he put to death their son. Cleopatra having asked the aid of Demetrius II., Ptolemy was recalled, B.C. 127 and for the rest of his reign adopted a more conciliatory policy. He engaged in war against Demetrius II., and supported the usurper Alexander II., against whom he subsequently turned, apparently with reason. The reconciliation with the Seleucids led to the recall of Cleopatra II., with whom Ptolemy now reigned. He died B.C. 117, in the fifty-fourth year from his first accession. This king, the worst of the Ptolemies, as Philometor was the best, is significantly known by the nickname Physcon, or Fat-paunch, but he was also called by his subjects the Ill-doer, Kakergetes, instead of the Well-doer, Euergetes. Some of his latest coins present, instead of the idealized head of Ptolemy, the founder of the line, bloated and cruel features which can only be those of Physcon. His one good quality was a hereditary love of letters.

Cleopatra III., surnamed Cocce, widow of Euergetes and heiress of Philometor, succeeded, and, in deference to the popular will of the Alexandrians, associated with her Ptolemy Soter II., surnamed Lathyrus, or Lathyrus, her elder son, instead of Ptolemy Alexander I., the younger, whom she preferred. They ruled together with little concord, and at length Cleopatra expelled her colleague, who had been the real sovereign, and recalled Alexander from Cyprus, where he had already ruled independently for seven years (B.C. 107). Cyrene was probably lost to Egypt about this time. Physcon had left this kingdom to his base son Ptolemy Apion, who is generally supposed to have at once succeeded. The coins, however, show that the latest Cyrenaic coinage of Physcon was continued by Lathyrus. Cleopatra III. now ruled with a stronger authority, but by degrees Alexander gained the upper hand and ultimately dissensions arose which ended by his causing her death (B.C. 89): this occasioned troubles which lost him his throne, and brought about the recall of his brother (B.C. 89). During the interval Lathyrus had ruled in Cyprus, and both brothers had engaged on opposite sides in the wars of the Seleucid princes. As king of Egypt, Lathyrus had to subdue a native revolt, the first we know to have happened in Upper Egypt in the time of the Ptolemies. Thebes seems to have been its center, and here the insurgents stood a siege of nearly three years, when the city was taken and reduced to the ruined state from which it has never since risen. Lathyrus died in B.C. 81. He appears to have been weak and cruel, with some qualities as a politician and general. He left one legitimate child, a daughter, Berenice III., who succeeded him. Her stepson, Alexander II., son of Alexander I., came from Rome as Sulla's candidate, and married her. The nuptials were almost immediately followed by the murder of the queen by her husband's order, and his deserved death in a popular tumult which was thus excited (B.C. 80). In default of legitimate issue, two base sons of Lathyrus now shared the Egyptian dominions, the elder, Ptolemy Neus Dionysus, surnamed Auletes, the Flute-player, taking Egypt, and his younger brother Ptolemy acquiring Cyprus. Auletes inherited the vices without the ability of Physcon, and having spent great sums in obtaining the recognition of the senate, who probably would not readily part with the claim based on the legacy which either Alexander I. or II. had made of his kingdom to the Romans, he wearied the patience of his subjects by heavy taxation, and was expelled by the Alexandrians B.C. 58. His wife Cleopatra V. and daughter Berenice IV. now reigned together, but, on the death of the elder, the younger became sole queen. Berenice was twice married, first to Seleucus, a pretended Seleucid, whom she put to death, and then to Archelaus. With

the support of Gabinus, proconsul of Syria, Auletes at length recovered Egypt, B.C. 55. He punished his daughter with death, and in B.C. 51 his troubled reign came to an end. At this time his family consisted of two sons and two daughters—the famous Cleopatra and Arsinoë, all of whom in turn exercised regal power, three in Egypt.

Ptolemy, the eldest son of Auletes, and Cleopatra VI., his eldest daughter, succeeded in accordance with their father's will, which the Roman Senate ratified. In B.C. 48 her brother expelled Cleopatra, who fled into Syria. Advancing to conquer Egypt by force of arms, she was met by her brother's forces near Pelusium. Here it was that Pompey, after the ruin of his cause, was assassinated by order of Ptolemy's ministers as he sought the king's protection. Cæsar, following Pompey, reached Alexandria. Here Cleopatra, giving up her ideas of war, made her way to Cæsar and secured his interest. After a struggle with the Egyptian ministers, who almost succeeded in overpowering Cæsar's small forces, and who ultimately had the support of young Ptolemy, who escaped from the Romans, the Egyptians were defeated and the king drowned (B.C. 47). Cleopatra now became queen, associated with a phantom king, the younger Ptolemy. In B.C. 45, she went to Rome with her brother and young Ptolemy Cæsar, her son by the dictator, wishing to be acknowledged Cæsar's wife, and that the boy should be made his heir. Next year Cæsar was murdered, but by his will his nephew Octavius became his heir, Cleopatra's son, his only surviving child, being necessarily set aside. The queen determined to secure for her son Egypt at least, and made away with her unfortunate brother. She next appears when, after the battle of Philippi, the triumvir Antony made his progress through Asia Minor. It was necessary that the queen of Egypt should conciliate the ruler of the Eastern world. Cleopatra resolved to govern him. As Cæsar seven years before, Antony now was instantly captivated by the Egyptian queen. She was past thirty, but in her beauty had waned her wit had grown. Her portrait on her coins is that of a woman of intellect and charm, not of beauty. A broad head with wavy hair, an aquiline nose, large deep-set eyes, and a full eloquent mouth, is supported by a long slender throat. To these personal qualities she added a mind singularly cultivated, ready discourse in several languages, and, what that so often lacks, as ready wit. She took Antony to Alexandria and governed the East for him. While her power waxed his waned. Asia Minor was overrun by Q. Labienus at the head of a Parthian army, and Palestine and Phœnicia by another led by Pacorus, the Parthian king's son. In Italy Antony's adherents were routed. He now resolved to attack Italy itself, and a great war was only averted by the armies, which forced the generals to conclude a peace (B.C. 40). Octavia, his rival's sister, was given in marriage to Antony, and for three years Cleopatra lost her power. In B.C. 36, Antony deserted Octavia and returned to Alexandria and the Egyptian Queen. With the exception of an unsuccessful Parthian campaign and an inglorious Armenian one, Antony effected nothing. He was amused by the luxurious life of Alexandria; and, while Cleopatra maintained her Egyptian rights and ruled with Ptolemy Cæsar, she shared Antony's government of the East, appearing as queen with him as triumvir upon the coins of Antioch. In B.C. 32, Octavian declared war against Cleopatra, and Antony took his revenge by divorcing Octavia. Then followed the conflict in the Adriatic for the world's empire, in which Antony's old military skill failed him, and Cleopatra, leaving the battle, perhaps through a woman's fear, drew him away also (B.C. 31). Arrived at Alexandria,

Cleopatra showed more energy than Antony, and when Octavian reached Egypt, more policy. Antony, on the false news of the queen's death, stabbed himself; and Cleopatra, finding Octavian resolved to make her walk in his triumph, perished by her own hands in some unknown way. Thus Egypt became a Roman province, B.C. 30. The young Ptolemy Cæsar, in spite of his double claim, perished by the command of Octavian, but the beautiful Cleopatra, Antony's daughter by the queen, was generously taken by his divorced wife, Octavia, brought up with her own children, and married to a king, Juba II. of Mauretania. With their son Ptolemy, whom Caligula put to death A.D. 40, this great line came to an end. Its genius ended with Cleopatra. The dislike of the Romans for her has tended to give the moderns too low an estimate of her abilities. When we see what Egypt was under Auletes and under her we are astonished to perceive how much she accomplished by her management of Cæsar and of Antony. After all the other independent states had been absorbed by Rome, Egypt was raised from a mere protected province to be once more a kingdom, and at last Alexandria became again a seat of empire. But the task Cleopatra set herself was beyond accomplishment; the more she turned Antony into an imperial ruler the less could he control the Roman armies by which he governed. Thus the fabric she had raised was rotten at the base, and with her fall it disappeared.

TOPOGRAPHY AND MONUMENTS.

The northern coast of Egypt is low and barren, presenting no features of interest, and affording no indication of the character of the country which it bounds. It is a barrier, generally of sand-hills, but sometimes of rock, for the most part wholly destitute of vegetation, except where grow a few wild and stunted date-palms. Immediately behind are desolate marshy tracts or extensive salt lakes, and beyond, the fertile country. The last is a wide plain, intersected by the two branches of the Nile, and by many canals, of which some were anciently branches of the river, and having a soil of great richness, though in this particular it is excelled by the valley above. The only inequalities of the surface are the mounds of ancient towns, and those, often if not always ancient, on which stand the modern towns and villages.

Of the towns on the northern coast, the most western, Alexandria, called by the natives El-Iskendereeyeh, is the largest and the most important. It was founded in the year B.C. 332 by Alexander the Great, who gave it the form of a Macedonian mantle.

Alexandria, which partly occupied the site of the ancient Rhacotis, a place of little importance, naturally speedily increased in consequence, and became the emporium of the trade between Europe, Arabia, and India. After the death of Alexander the city became the capital of the Ptolemies. By the Ptolemies Alexandria was adorned with palaces of great magnificence, for which they did not scruple to despoil more ancient edifices of some of their chiefest ornaments. While its commercial importance increased, it became a celebrated seat of learning, with the greatest library of antiquity, through the wise interest with which the Greek kings regarded science and letters. Under the Ptolemies, however, the inhabitants, who were chiefly Greeks, became very troublesome to their rulers, like most commercial populations, and their turbulence was ill restrained by the weakness of the later sovereigns of that line. From the time of the Roman conquest, B.C. 30, until it was taken by the Arabs, A.D. 641, Alexandria sensibly declined, partly in consequence of its being a provincial capital, instead of a royal residence, but chiefly because

of the unruly disposition of its inhabitants, and their violent religious and political disputes, which at last resulted in the seat of government being transferred to the fortress of Egyptian Babylon, near the modern Cairo, which became in some sort the capital. During this period it had been distinguished for the learning of its ecclesiastics, and the strong part which they took in the theological differences of the early church. Under the Muslims Alexandria never regained the position of metropolis of Egypt, and its importance, with some fluctuations, waned until the discovery and consequent adoption of the route to India by the Cape of Good Hope almost withdrew the main cause of its prosperity. Recently, however, the resumption of the overland route has greatly benefited this city, and although it was not made the capital, it became the favorite residence of Mehemet Ali, which in like manner contributed to its welfare.

Proceeding to the east of Alexandria, the first place of importance is Er-Rasheed, called by the Europeans Rosetta, a considerable town on the west bank of the Rosetta branch of the Nile, anciently the Bolbitine. Before the cutting by Mehemet Ali of the Mahmoodeeh Canal to connect Alexandria with this branch of the river, Rosetta was a place of greater importance than now, as in consequence of the decay of the old canal of Alexandria, the overland trade from India chiefly passed through it. It is a well-built town, having some gardens, and is in many respects more agreeable than Alexandria. Its population is stated to be 15,000.

In ascending the Rosetta branch, the first place of interest is the site of Saïs, SAÏ, on the eastern bank, marked by lofty mounds, and the remains of massive walls of crude brick, which were those of a great inclosure in which the chief temple and doubtless other sacred edifices stood. The goddess Nit or Neith was the divinity of the place, and a great festival was annually held here in her honor, to which pilgrims resorted from other parts of Egypt. Saïs was remarkable for the learning of its priests, and was the royal residence of the Saïte kings. A modern village here is called "Sâ-el-Hagar," or "Saïs of the Stone," a name which perhaps alludes to the famous monolith described by Herodotus.

Several places of interest are found on the course of the Damietta branch, the old Pathnitic or Pathmetic. First of these is the town whence it takes its name, Dimyât, called by the Europeans Damietta, which stands not far from the mouth of the branch, on its eastern side. In the time of the crusades it was a strong place, and regarded as the key of Egypt. It was taken and retaken by the contending forces, and formed the basis of the operations of St. Louis in the unfortunate eighth crusade.

To the eastward of the Damietta branch, in the broad cultivated tract or the desert beyond, are some places worthy of note. The most eastern of these is the site of Pelusium, which was, in the time of the Pharaohs of Dynasty XXVI., the key of Egypt toward Palestine. No important remains have been discovered here. Between this site and the Damietta branch are the mounds of Tanis, or Zoan, Z'AN, ZAR, where are considerable remains of the great temple, the most remarkable of which are several fallen obelisks, some of which are broken. From their inscriptions, and those of other blocks, it has been ascertained that the temple was as ancient as the time of Dynasty XII., and was much beautified by Ramses II. and other kings of that time and the subsequent period. Tanis was on the eastern bank of the Tanitic branch of the Nile, now called the Canal of the El-Mo'izz. On the same side of the same branch, but far to the south, was the city of Bubastis,

PE-BAST, the site of which is indicated by very lofty mounds, in which may be traced the remains of its great temple, which was entirely of red granite. Here was held the festival of the Goddess Bast, or Bubastis, which attracted great crowds of pilgrims, and is ranked by Herodotus first of the festivals of Egypt. Not far south, and on the borders of the desert, is Bilbeys, which was a place of some importance as a frontier-town in the time of the Eiyooabee princes. Still farther south are the mounds of Onion, the Jewish city founded by the high priest Onias, where was a temple closed by Vespasian not long after the overthrow of Jerusalem. The site is called Tell-el-Yahoodeeh, or "The Mound of the Jewess."

At the point of the Delta is the unfinished barrage, which, by crossing both branches of the river, will regulate the inundation above and below this point. The river here becomes broader than in its divided state, and long continues so. A little south of the point of the Delta, on the eastern bank of the river, near the village of El-Matareeh, not far north of Cairo, is the site of the ancient Heliopolis, or On, AN, the City of the Sun, marked by a solitary obelisk, and crude brick ridges formed by the ruins of a massive wall. The obelisk bears the name of Usurtesen I., the second king of Dynasty XII., in the simple inscription which runs down each of its sides. It is of red granite, and nearly seventy feet in height. The city was famous rather for the learning of its college than for its size, and the temple of the sun was held in high veneration. Many famous Greek philosophers studied here, and much of their earliest knowledge of natural science was no doubt derived from their Egyptian instructors.

Boolák, the port of Cairo, is a flourishing town, having two remarkable mosques.

Cairo is the fourth Muslim capital of Egypt; the site of one of those that have preceded it is, for the most part, included within its walls, while the other two were a little to the south. Its name signifies "the Tent," as it was built where 'Amr had pitched his tent. The new town speedily became a place of importance, and was the residence of the Nâibs, or lieutenants, appointed by the orthodox and Omniade caliphs. It received the name of Masr, properly Misr, which was also applied by the Arabs to Memphis and to Cairo. It declined after the foundation of El-Kâhireh, but never became altogether deserted, for a small town, called Masr El-'Ateekah, or "Old Masr," occupies, in the present day, part of what was its area in its time of prosperity. Shortly after the overthrow of the Omniade Dynasty, and the establishment of the 'Abbâsee, the city of El-'Askar was founded (A.H. 133) by Suleymân, the general who subjugated the country, and it became the capital and the residence of the successive lieutenants of the 'Abbâsee caliphs. Cairo is of an irregular oblong form. Its greatest length is about three miles, and its average breadth about a mile and a half, and its dimensions do not fall very much short of these in any part. It is still the most remarkable and characteristic of Arab cities. Here the student may best learn the history of Arab art. Like its contemporary, Gothic, it has three great periods, those of growth, maturity, and decline.

To the east of Cairo is a bold spur of the mountains known as El-Gebel El-Mukattam. Beneath it, and to the north of the Citadel, is the Cemetery of Kâit Bey, remarkable for the splendid tombs of the Memlock sultans. The most beautiful of these is that of Kâit Bey, from which the cemetery takes its name, but those of the sultan Barkook and of El-Ghooree must not be passed by unmentioned. At a little distance to the northeast is the Gebel-el-Ahmar, or "Red Mountain," and southward of this, petrified wood in large quantities is seen

strewn on the surface of the desert. The space between Cairo and the Nile, varying from a mile to a mile and a half in breadth, is occupied by plantations, which were made by Ibrahim Pasha during his father's rule. To the south of Cairo is a great cemetery containing the tomb of the Imám Esh-Sháfe'ee, and also an aqueduct, built by the sultan El-Ghooree, which conducts water from the Nile to the Citadel; and further south, the Roman fortress of Egyptian Babylon, now called Kasr-esh-Shema, at present chiefly occupied by a Coptic convent, as well as the small town of Masr El-'Ateekah, which is all that remains of the famous metropolis El-Fustát.

The chief place on the western bank, near Cairo, is the small town of El-Geezeh, opposite Masr El-'Ateekah. El-Geezeh is best known as having given its name to the most famous group of pyramids, the chief monuments of Memphis, which stand on the slightly elevated border of the low Libyan range, not more than a quarter of a mile beyond the limit of the cultivated land.

The city of Memphis, MEN-NOFER, "the good station," stood on the western bank of the Nile about ten miles above Cairo. It was founded by Menes, the first king of Egypt. The kings and people who dwelt there chose the nearest part of the desert as their burial-place, and built tombs on its rocky edge, or excavated them in its sides. The kings raised pyramids around which their subjects were buried in comparatively small sepulchers. The pyramids were grouped together, and often there is a long distance from one group to another. Although many pyramids have been nearly or entirely destroyed, yet as the largest undoubtedly remain, the general features of the necropolis cannot be much changed. From the Citadel of Cairo we obtain a good view of the several groups. First, opposite to us, but a little to the south, are the three great Pyramids of El-Geezeh, two of which exceed all the others in magnitude; at some distance farther south we see those of Abou Seer, likewise three in number, of smaller dimensions, and, not so far beyond them, the great Pyramid of Sakkárah, called from its form that of Steps, with smaller pyramids in its neighborhood. Farthest of all, after a wide interval, are the two large Pyramids of Dahshoor, which approach in size the two great structures of El-Geezeh. There are more to the south as far as the Feiyoum, the last being that of El-Láhoon, but none above the Pyramids of Dahshoor can be included within the Memphite necropolis. That great tract extended, if we measure from the ruined Pyramid of Abou-Ruweysh, somewhat to the north of those of El-Geezeh, to the southernmost Pyramid of Dahshoor, throughout a space of nearly twenty miles, in almost every part of which some sepulchers have been discovered, while it cannot be doubted that many more await a fortunate explorer. The Pyramids, except one or more small ones, were tombs of kings. Each had its name and a priest attached to it, for whose functions there was a chapel at some distance in front of the entrance.

The Great Pyramid, "the Splendid," was the mausoleum of Khufu, or Cheops, of Dynasty IV. The present perpendicular height of the structure is, according to General Vyse, 450 feet 9 inches, and the side of its present base 746 feet. It is about thirty feet lower than it was originally, in consequence of the casing stones and much of the outer masonry having been torn off; and its base is likewise smaller. General Vyse gives the former height at 480 feet 9 inches, and the side of the former base at 764 feet. Like all the other pyramids, it faces the cardinal points. At the completion of the pyramid the faces were smooth and polished, but now they present a series of great steps formed by the courses of stone, and are in some places

(particularly in the middle of each face, and at the angles, and about the entrance) much broken. The ascent is easy though fatiguing, and the traveler is amply rewarded by the view which he obtains from the platform, about thirty-two feet square, at the summit. The prospect of the fertile plain and valley on the one side, and of the undulating barren surface of the Great Desert on the other, as well as of the pyramids and tombs beneath, is alike remarkable from its character and the associations which it calls up. The examination of the interior is no less interesting. All other tombs but the Memphite pyramids, and those which were simply pits, were not closed, the upper chamber being intended for the performance of funeral rites when the family of the deceased visited his sepulcher. These pyramids, however, were most carefully closed. The chambers which contained the bodies of the king, and of those (doubtless of his family) who were sometimes buried in the same structure, are without sculptures, and scarcely ornamented in any way, being usually wholly plain. The passages leading to them are only large enough to admit a sarcophagus, and after the king's burial were closed by the lowering of heavy stone portcullises, and the blocking up of the entrance. The desired object was security, and we must not, therefore, expect beauty or grandeur in chambers constructed for this purpose, although we cannot fail to admire their massive and gloomy aspect.

The entrance of the Great Pyramid is not far from the middle of the northern face, forty-nine feet in perpendicular height from the base. The fallen stones and rubbish have, however, raised a mound which reaches nearly to the entrance, the masonry about which having been torn down, we gain some idea of the construction of the pyramid. In this manner the passage has lost somewhat of its length. The passage itself is 3 feet 11 inches high, and 3 feet 5½ inches wide, and is lined with fine limestone. It descends at an angle of 26° 41'. At a distance of 63 feet 2 inches from the beginning of the roof of the present entrance, a second passage commences from this, taking an ascending direction. The entrance of this new passage is obstructed by great blocks of granite which entirely fill it, and have been passed by means of an excavation around them. We thus enter the ascending passage, which is of the same breadth and height as the former, and inclines at an angle of 26° 18'. The stones which line its roof and sides are very rough, and it has evidently been left unfinished. After ascending this passage for a distance of 109 feet 7 inches, we reach the Grand Passage, which, from its greater dimensions, presents a comparatively imposing appearance. It ascends at the same angle as the last, while a horizontal passage runs beneath it to a chamber to be subsequently mentioned. Just within the Grand Passage is the mouth of the Well, an irregular pit, partly excavated in the rock, leading to the lower portion of the first passage. Its object was probably to afford an exit to the workmen who had been engaged in closing the ascending passage. The Grand Passage is 6 feet 10 inches in width at its base, 28 feet high, and 156 feet long. The blocks which compose its sides gradually approach, every course above the second projecting a little, and on each side is a stone bench. At the end of this passage a horizontal one begins, of much smaller but unequal dimensions, and 22 feet 1 inch in length, leading to the Grand Chamber, commonly called the King's Chamber, which it enters at the eastern end of its north side. This, which is the principal sepulchral chamber (unless, indeed, there be an undiscovered one of greater importance), is lined with red granite, and measures in length 34 feet 3 inches, in width 17 feet 1 inch, and in height 19 feet 1 inch. It is altogether plain, and contains only a sar-

cophagus of red granite, which is equally unadorned. Above this chamber are five small ones, which may be called entresols, evidently designed to lighten the pressure of the superincumbent masonry, particularly as the uppermost of them has a pointed roof. Four of these were discovered by the late Gen. Howard Vyse, who found in them quarry-marks, bearing, in two varieties, the name of Khufu, the royal builder of the pyramid. These chambers are reached with difficulty, and chiefly by forced passages. The horizontal passage beneath the Grand Passage must now be described. This is but 3 feet 10 inches high, and 3 feet $5\frac{1}{2}$ inches wide, for the first 92 feet of its length, and then we descend a step and find the passage to be 5 feet 8 inches high for 17 feet 11 inches farther, until it enters the "Queen's Chamber," as it is usually called, at the eastern corner of its north side. This chamber is 18 feet 9 inches long, and 17 feet broad, and its extreme height is 20 feet 3 inches. It has a pointed roof, of great blocks of stone, inclined upward and meeting in the middle. Within it is the entrance of a forced passage. The remainder of the first passage, beyond where the first ascending passage leads to the most interesting parts of the structure, is still to be noticed. It continues below the forced entrance to the ascending passage for a distance of 239 feet 10 inches, being cut through the rock on which the pyramid is built. For this space its inclination and proportions do not change, but it then becomes horizontal for 27 feet, terminating at the entrance of an excavated chamber 46 feet in length, and 27 feet 1 inch in breadth, but of irregular and inconsiderable height. There is no doubt that this chamber was left unfinished at the closing of the pyramid. Beyond it the passage continues, opposite to where it entered the chamber, and extends horizontally 52 feet 9 inches into the rock in the same direction.

The Second Pyramid, which bore the name of "the Great," and was the tomb of Khafra, or Chephren (Dynasty IV.), stands at a short distance to the southwest of the Great Pyramid, which does not very much exceed it in magnitude, though far superior in construction. It has a base of 660 feet 9 inches square, and is 447 feet 6 inches in height, being more steep than its larger neighbor. A great part of its casing having been preserved, extending about a fourth of the distance from the summit, the ascent is very difficult, especially as when one has climbed on to the cased portion he can see nothing of the lower part of the building, and thus feels as if upon a pyramid in the air. There are two entrances, both in the north side, from which, and other peculiarities, it is possible that the building was originally much smaller than now, and that, after its first completion, it was enlarged, and a new entrance and sepulchral chamber added.

The Third Pyramid, "the Superior," the tomb of Menkaura, or Mycerinus, is almost in a line with the other two, and of much smaller dimensions, being only 203 feet in height, and 354 feet 6 inches square at the base. It is constructed beautifully, and in a costly manner, and in these respects is unexcelled, if equalled, by any other pyramid.

Near the three large pyramids are six smaller ones; three of these are near the east side of the Great Pyramid, and three on the south side of the Third Pyramid. They were probably the tombs of near relations of the kings who founded the great pyramids.

Southward of the Pyramids of El-Gezeh, the first objects of interest are those forming the similar group of Abou-Seer, of much smaller dimensions, the largest being about the size of the Third Pyramid. They are on the elevated edge of the Libyan chain, about seven miles from the Third Pyramid, and are four in number,

three being large, and the fourth very small. The Northern Pyramid of Abou-Seer appears to have been the tomb of Sahura of Dynasty V., and the Middle Pyramid is the tomb of Ra-n-user of the same line.

About two miles farther in the same direction are the Pyramids of Sakkarah, the greatest and most remarkable of which is called the Pyramid of Steps. The tract around them appears from the number of the tombs to have been the principal burial-place of Memphis, to which it is near. The Pyramid of Steps has a height of 196 feet 6 inches, and its base formerly measured on the north and south sides 351 feet 2 inches, and on the east and west 393 feet 11 inches. Within it are numerous passages and a gallery, which must, for the most part, have been made subsequently to the completion of the structure. In the center is a very lofty and narrow chamber, and near it a small one, which was lined with blue tiles. In the latter was an inscription containing the title of the bulls Apis. Under the old monarchy those sacred animals were here entombed. It is thought that this pyramid was constructed by Unephes of Dynasty I. If Manetho be correct in assigning the introduction of the worship of Apis to a later king, this pyramid, if of Unephes, was originally a royal sepulcher. In the tract between the Pyramids of Sakkarah and Abou-Seer are the remains of the Sarapeum, and the burial-place of the bulls Apis, both discovered by M. Mariette. They are inclosed by a great wall, having been connected, for the Sarapeum was the temple of the defunct Apis. The tombs are in subterranean galleries, or in separate excavations which contain many sarcophagi, in which the bulls were entombed. Not the least important result of this discovery is the certainty that Sarapis was a form of Osiris, and that his name was Hesiri-hapi, or Osiris-Apis.

The site of Memphis is marked by mounds in the cultivated tract to the east of the Pyramids of Sakkarah, and near the village of Meet-Raheeneh. Of the great temple of Ptah, its tutelary divinity, there are no remains above ground, except a few blocks of stone and some broken statues, one of which is a fine colossus of Ramesses I., which most probably stood in ancient times before one of the principal entrances of the temple. It is of white chert, and beautifully executed, representing the king in a standing posture. It has fallen to the ground, and has lost part of its legs; nevertheless it has suffered inconsiderable damage elsewhere, so as to be still one of the finest specimens of Egyptian art. The original height was more than forty feet. This colossus is the property of the British nation, but no steps have been taken to remove it to England.

At a distance of about five miles to the south of the Pyramid of Steps is the northernmost of the Pyramids of Dahshoor, an interesting group, of the history of which nothing certain is known. To their north is a vast truncated pyramid, the sepulcher of Unas, last king of Dynasty V., anciently called "the Most Beautiful Place," now Mastabat Faraoun, or "Pharaoh's Seat." Two of the Pyramids of Dahshoor are of stone, and three of crude brick. The former exceed in size all the other pyramids except the First and Second of El-Gezeh, and have remarkable chambers within them. The Northern Stone Pyramid has a base of 700 feet, and a height of 326 feet 6 inches, and has lost somewhat of its size, having originally measured 719 feet 5 inches and 342 feet 7 inches. Some of the casing remains. It has an entrance in the northern face, leading to three chambers of similar construction to the Grand Passage in the Great Pyramid. The Southern Stone Pyramid is distinguished by the peculiarity of its form, and by having two entrances, one in the eastern face and the other in the northern. It has been supposed that it was sub-

denly completed, having been originally planned to be much loftier, but the method in which the pyramids were built renders this unlikely; and it seems rather to have been given this form to gratify a whim of the founder, especially as the entrances in different faces afford another peculiarity. Its base is 615 feet 8 inches, and its height 319 feet 6 inches. At its southern side is a small brick pyramid. The Northern and Southern Brick Pyramids of Dahshoor are to the east of those already described. They are now in a very ruined state, being merely mounds of crude brick; one of them is probably the Pyramid of Asychis, mentioned by Herodotus.

The voyage up the Nile from Cairo may now be described. Not far south of Masr El-Ateekah, the mountain and desert approach very near the river on that side, and soon after the wide opening of a valley is seen. Beyond it is a bold promontory of the eastern range, which first gradually recedes and then becomes parallel with the river for some distance, leaving but a narrow strip of cultivated land. Behind the village of Turâ, the ancient Troja, are the quarries named after it, and a little farther to the south are those of El-Masarah. These quarries are great excavated chambers and passages, which are entered by large square apertures in the steep face of the mountain. Hence were taken the finer blocks of limestone employed in the construction of the Pyramids of El-Geezeh. Tablets in both quarries record the quarrying executed under different sovereigns. South of the quarries the character of the eastern bank continues unchanged, and presents no remarkable object until we reach the promontory of the Sheikh Aboon-Noor, which will be subsequently mentioned. The western bank, on the contrary, is broad and fertile, abounding in villages, and above its palm-groves rise in the distance the massive forms of the long series of pyramids. Considerably beyond those of Dahshoor, which may be considered as the most southern in the Memphite necropolis, are the two Pyramids of El-Metânecyeh, which are too small to be seen from the river, and yet farther the solitary Pyramid of Meydoom, commonly called the False Pyramid. Doctor Brugsch thinks it very probable that it was the tomb of Senoferu, last king of Dynasty III. It is a structure of great size, having a base of about 400 feet, and a height of about 310 feet. In consequence of blocks having been pulled off its sides for building purposes, it has the appearance of being built in two degrees, the lower of which is much greater than the upper, while the fallen stones around its base make it seem as if raised upon an eminence to increase its apparent size, and hence its name. The entrance has not been discovered. Its position, rising alone above the rich valley and desert beyond, without any object by which to measure its size, render this pyramid, especially when seen from some distance across a broad part of the river to the north, a very striking object. There is nothing else worthy of a visit on the western bank until we reach the town of Benec-Suweyf, about seventy miles by the course of the river from Cairo.

Benec-Suweyf is a busy town, being the port of the Feiyoum. A road leads hence to that province, in a northwesterly direction.

The site of the famous Labyrinth first claims our notice after entering the Feiyoum. Its position may be known by a ruined crude brick pyramid, that of Hawârah, which is spoken of by both Herodotus and Strabo, and may be called the Pyramid of the Labyrinth. The remains of the Labyrinth itself, which had been previously known, were first carefully examined by the Prussian expedition headed by Professor Lepsius, in 1843. The structure was so ruined, however, that the results

were not as decisive as might have been hoped. Yet the plan was to some extent made out, and the building shown to have contained a great number of very small chambers, as ancient writers had said; and the discovery of royal names of Dynasty XII., particularly of Amenemhat III., to whom Manetho ascribes the founding of the Labyrinth, leaves little doubt that this king was the Mæris who built the Labyrinth, according to the classic writers. The use of this building has not been distinctly ascertained. Manetho indeed makes it to have been the founder's tomb, but it is most probable that he was buried in the pyramid, which, however, the Egyptian historian may have regarded as part of the Labyrinth, as it is evidently connected with that structure.

Not far beyond the site of the Labyrinth is the capital of the province usually called "El-Medeeneh," or "the City," and "Medeenet-el-Feiyoum," "the City" or "Capital of the Feiyoum," close to the mounds of the ancient Arsinoë, or Crocodilopolis. It is a small but flourishing town. The only monuments of antiquity in its neighborhood are the remains at Beyahmoo somewhat to the north, and the great broken tablet at Begeeg, at a smaller distance to the south. The former are two structures supposed by some to be pyramids, and the latter, which is a record of the time of Usurtesen I., is usually called an obelisk, but it must rather be regarded as a very tall and narrow stele or tablet, upward of forty feet in height.

In this part of the Feiyoum, to the north of El-Medeeneh, may be traced the remains of that remarkable hydraulic work the Lake Mæris. It seems rather to have deserved the name of a very large reservoir than that of a lake. Notwithstanding the drying up of the Lake Mæris, the Feiyoum is still an important and fertile province. It produces very large quantities of grapes; and the fields of roses, cultivated for the sake of rose-water, present a remarkable appearance.

The great Lake of El-Karn is perhaps the most interesting object in this part of Egypt. Its name, Birket-el-Karn, signifies "The Lake of the Horn," or "Projection," by which an island is intended, and not its general form, as has been supposed. Near the lake are several sites of ancient towns, and the temple called Kasr-Károon distinguishes the most important of these. That temple, however, being devoid of sculpture, and doubtless of the Roman period, could not attract attention except in a region barren of monuments.

The first noteworthy object above El-Minyeh are the sepulchral grottoes of Benec-Hasan, which are inferior to none in Egypt for beauty and interest. They are excavated in the face of the eastern mountains, which are here very low and sloping, and separated from the river by a small extent of debris and desert, and a very narrow strip of cultivable land. The grottoes are almost in a line near the summit of the mountain, and at no great height above the river. The two northernmost are remarkable for having porticoes, each supported by two polygonal columns of an order which is believed to be the prototype of the Doric. Most of the grottoes are adorned with sculptures and paintings, which portray with eminent truthfulness and character the manners of the Egyptians of the remote period at which they were executed, for they are tombs of monarchs and other governors of Dynasty XII.

A few miles to the south of the Speos Artemidos are two sites, one on either side of the river, which were marked, in the present century, by most important monuments, which have since been destroyed by the Turks.

The city of Abydos was a few miles from Girgâ, in a southwesterly direction on the border of the desert,

here separated from the Nile by a broad cultivated tract. Close to it was Thinis or This, the town of Menes. Two interesting edifices render Abydos worthy of a visit. They are both dedicated to Osiris, the chief divinity of the place. The southernmost of these is a temple of Osiris, in which we find the names of Ramses II. and his father Setee I. The other structure is smaller, and in a worse state of preservation than the other temple, and among its sculptures are the same names, those of Setee I. and Ramses II. Hence was taken the famous list of Pharaohs known as the Tablet of Abydos, which is now one of the most valuable objects in the British Museum, and M. Mariette has since discovered a corresponding tablet in the other temple, happily complete. In the desert near by are many sepulchres, remarkable on account of the interesting antiquities which have been discovered by clearing them out. The sanctity of Elydos as a reputed burial-place of Osiris rendered this a favorite necropolis of the ancient Egyptians from very early times, particularly under Dynasty XII.

The monuments of Thebes do not present from afar the imposing appearance of the Pyramids of Memphis. Placed for the most part at a distance from the Nile, as well as from one another, and having on the western side the picturesque form of a much higher mountain than any near Memphis rising behind them, they do not strike those who see them from the river. Most of them are not indeed visible from the Nile except when it is at its height. The stately colonnade of the temple of El-Uksur, incorrectly called Luxor, on the very bank, is, however, not unworthy the magnificence of Thebes, and when one approaches the other monuments his utmost expectations are exceeded by the grandeur of El-Karnak, the beauty of the temple of Ramses II., and mystery of the Tombs of the Kings. Nowhere else are the mythology, the history, the very life and manners of the Egyptians of old times so vividly brought before the eyes as in the sculptured and inscribed monuments of the capital of the Empire.

Thebes, or Diospolis Magna, is called in the hieroglyphic inscriptions Ap-ti, or, with the article prefixed, T-ap, whence Thebes, and Nu-Amen, the city of Amen, the No-Amon or No of the Bible. The date of its foundation is unknown, but there are remains of the time of Dynasty XI., the first of Diospolite kings. Under the sovereigns of Dynasty XII. it must have become a place of importance, but it probably declined during the troubles of the Shepherd period. With Dynasty XVIII. it attained its highest prosperity, and maintained it during Dynasties XIX. and XX. To this period its greatest monuments belong. Then its decline evidently commenced; but from the manner in which Homer mentions it, Thebes must have been still a great city in his days. After this it suffered severely from the violence of the Assyrians and Persians, and lastly of Ptolemy Lathyrus; so that in Strabo's time the Thebans inhabited villages as now, and there was no longer a city (*Geogr.*, xvii, 1).

The monuments of Thebes, exclusive of its sepulchral grottoes, occupy a space on both sides of the river, of which the extreme length from north to south is about two miles, and the extreme breadth from east to west about four. The city was on the eastern bank, where is the great temple, or rather collection of temples, called after El-Karnak, a modern village near by. The temple of El-Karnak is about half a mile from the river, in the cultivable land. More than a mile to the southwest is the temple of El-Uksur, on the bank of the Nile. On the western bank was the suburb bearing the name Memnonia. The desert near the northernmost of the temples on this side, the Setheum, almost

reaches the river, but soon recedes, leaving a fertile plain generally more than a mile in breadth. Along the edge of the desert, besides the Setheum, are the Rameseum of El-Kurneh, and, less than a mile farther to the southwest, that of Medeenet-Haboo, and between them, but within the cultivated land, the remains of the Amenophium with its two gigantic seated colossi. Behind these edifices rises the mountain, which here attains a height of about 1,200 feet. It gradually recedes in a southwesterly direction, and is separated from the cultivated tract by a strip of desert in which are numerous tombs, partly excavated in two isolated hills, and two small temples. A tortuous valley, which begins not far from the Setheum, leads to those valleys in which are excavated the Tombs of the Kings beneath the highest part of the mountains which towers above them in bold and picturesque forms.

The temple of El-Uksur is nearest of the edifices to the river, and but an appendage to the great group of El-Karnak. It differs from most Egyptian temples in not facing the river, but this is accounted for by its connection with the temple of El-Karnak, from the southern approaches to which a long avenue of sphinxes (now wholly ruined) leads to it, ending at its entrance. This is a massive pylon, or portal with wings, 200 feet in width, before which is a very fine obelisk of red granite. Its fellow, which stood on the western side, was removed by the French to Paris in 1831, and now adorns the Place de la Concorde. Both have beautifully cut hieroglyphic inscriptions. The height of that which remains is about eighty feet. It is adorned with three vertical lines of hieroglyphics on each side, bearing the titles of Ramses II. The other obelisk differs from this only in being slightly shorter. Close to the winged portal are three seated statues of red granite representing Ramses II.; a fourth has been destroyed. The wings of the portal are covered with sculptures of remarkable interest, representing occurrences in the war of Ramses II. with the Kheta or Hittites, in his fifth year. On the left wing is depicted the defeat by the Egyptians, led by their king, of the confederate peoples under the walls of the Hittite stronghold called Ketesh, or Kadesh, on the Orontes. The king is represented, according to the Egyptian custom, of a gigantic size, standing in his chariot, which he has urged into the midst of the hostile force, whose warriors fall by his well-directed arrows. The Egyptians, on the other hand, sustain no loss. On the right wing is represented the Egyptian camp. This has been sculptured over another subject, of which part may be now seen, owing to the falling out of the plaster with which it had been filled. All these representations are in sunk relief, and beautifully executed.

Although there is an approach to the temple of El-Karnak from that of El-Uksur, the grand entrance was toward the river, and from that direction it should be entered. This extraordinary assemblage of buildings consists of a great temple and several smaller structures, surrounded by a massive crude brick wall. There are other remains similarly inclosed, which were connected with the great temple.

The grand entrance is through a pylon more than 360 feet wide, for this is its measure above the rubbish which is piled up around it. It was never sculptured, nor was its surface smoothed. It presents, therefore, a rude appearance, and is much ruined, a great part of the left or northern wing being demolished. The court of which the pylon forms the front measures 329 feet in width and 275 in length, having on each side a gallery with a single row of columns; and a double colonnade, of which one column alone stands, formed an avenue from its entrance to that of the hypostyle

hall beyond. On the right side a temple of older date interrupts the side gallery, extending 50 feet into the court. Its front is formed by a propylon, about 90 feet wide, on each wing of which Ramses III. is portrayed in the act of slaying prisoners before Amen-ra. The interior of this temple consists of a court, which has on each side a row of Osiridean pillars, and at the end another row of such pillars with columns behind them, a hall or portico supported by eight columns, next to the court, and, beyond, other apartments. Nearly all the sculptures are of the reign of Ramses III., but the names of the later sovereigns occur. On the other side of the great court is a small structure, which may be called a chapel, or three chapels. The most interesting sculptures in this part of the group of temples are outside the eastern portion of the south wall of the great court, for here is the famous list of countries and towns subdued by Sheshonk I., or Shishak, the head of Dynasty XXII. Among the names is that thought to be the kingdom of Judah, and those of several places in the dominions of Rehoboam and Jeroboam I. At the end of the court is a fine portal, the wings of which are much ruined. This is the entrance to the great hypostyle hall, the most magnificent work of its class in Egypt. Its length is 170 feet, and its width 329; it is supported by 134 columns, the loftiest of which are nearly seventy feet in height, and about twelve in diameter, and the rest more than forty feet in height, and about nine in diameter. The great columns, twelve in number, form an avenue through the midst of the court from the entrance, and the others are arranged in rows very near together on each side. There is a transverse avenue made by two rows of the smaller columns being placed farther apart than the rest. The great hall is therefore crowded with columns, and the effect is surprisingly grand. The spectator, being generally unable to see beyond the columns, which are immediately around him, perceives the vast dimensions which, if viewed from a distance, might lose their effect. The forest of columns seems interminable in whatever direction he looks, producing a result unsurpassed in any other Egyptian temple. The partial ruin of its stone roof, and of some of the columns, renders the hall the more picturesque, and makes us wonder at the force which must have been expended in attempting to demolish it. This grand hall was built by Setee I., Dynasty XIX., and sculptured partly in his reign and partly in that of his son and successor Ramses II., who has sometimes effaced his father's name to substitute his own. It commemorates, not in its grandeur alone, but also by its sculptures, the magnificence and power of these two great Pharaohs. The sculptures of the interior of the walls represent these kings making offerings to the gods, and the like subjects occupy the columns. Far more interesting are those which adorn the exterior of the walls, and record the achievements of the same kings, those of Setee I. being on the north wall, and those of Ramses II. on the south. The former are of much greater interest than the latter, as far as we can judge, and in this respect inferior to none in Egypt. The scenes on the north wall are arranged in three compartments, of which the upper one has been nearly destroyed. In these scenes the king is represented of a gigantic size, charging in his chariot, and putting to the rout his enemies, capturing their strongholds and returning home in triumph. The chief nations are the *Kheta* or Hittites; the *Ruten* (*Luten*), at this time a great nation of Syria; the *Shasu*, or Arabs; the *K'halu*, Syria, or Syrians; and *Remenen*, Armenia. Among the captured places is *Ketchi*, in those days the most important stronghold between Egypt and Mesopotamia. There is also a long list of countries, cities, and tribes,

conquered or ruled by the king, among which we find *Naharina*, that is Aram-naharaim, or Mesopotamia, *Kesh*, Kush, or Ethiopia, etc. The battle-scenes of Ramses II. on the south wall do not, as far as they are seen, equal these in interest. Here also is a list of the king's conquests and possessions, and on the west side of a wall which joins this one at right angles, forming the side of a court of the southern approach to the temple, is a representation of the capture of Askelena or Ascalon, and an inscription recording the treaty between Ramses II. and the Kheta, concluded in the twenty-first year of his reign. The back of the hypostyle hall is formed by a ruined propylon bearing the name of Amenophis III., and then at a distance of about fifty feet is another propylon, entirely ruined. In the space between these propyla, which was a court, stands a beautiful obelisk of red granite, upward of seventy feet high, raised by Thothmes I. The fragments of its fellow, which was more to the north, strewed the ground. Behind the second of these propyla is another granite obelisk, 108 feet high, and according to M. Mariette the loftiest known (*Monuments of Upper Egypt*, 170). This great obelisk of El-Karnak is a monument of Queen Hatshepu of Dynasty XVIII., and an inscription on its pedestal records the period which elapsed (nineteen months) from the time that it was begun to be cut in the quarry until its completion in the queen's sixteenth year. The fellow of the great obelisk, which stood to the south of it, has been broken, and its fragments occupy its place. Beyond the great obelisk is the chief sanctuary, a structure almost entirely of granite, divided into two apartments, which was built under Philip A. dæus, in the place, no doubt, of one destroyed by Cambyses or Ochus. The space between the hypostyle hall and this sanctuary is extremely ruined, the huge stones being piled up in heaps as though an earthquake had overthrown the temple. But this destruction was probably due to human violence. Behind the sanctuary are fragments of a very ancient part of the temple, bearing the name of Usurtesen I., Dynasty XII. Considerably farther is a large oblate building of the time of Thothmes III., which affords a remarkable example of architectural caprice, its columns having inverted shafts and capitals, and its cornices being likewise inverted. Behind this and a stone wall of inclosure are ruined chambers, and far beyond, directly behind the center of the great temple, in the crude brick wall of inclosure, is a handsome portal, never finished, bearing the name of Nectanebes II.

The southern approach to the temple of El-Karnak from that of El-Uksur is, as before mentioned, by a ruined avenue of sphinxes, which ends near the great structure, and two other avenues begin. The westernmost of these, which is of colossal rams, conducts to a temple situate not far to the southwest of the first court of the great temple; we approach it through a stately portal bearing in its inscriptions the name of Ptolemy Euergetes I. The front of the temple, before which was another avenue of rams, is a propylon, which is almost uninjured. Behind it is a court having a double row of columns on each side and at the end, and again behind this is a hall supported by eight columns, and many small chambers. This temple was dedicated to Khuns, the third member of the Theban triad. It was begun under Dynasty XX., and continued by the high-priest kings. A small edifice having sculptures of the time of the Greek and Roman rule stands on the west of the court of this temple.

The avenue of sphinxes which branches off at the same place as the avenue of rams leading to the temple of Khuns takes an easterly direction and ends where another begins at right angles to it, which connects the

southern courts leading to the great temple with a separate inclosure. The latter contains a lake which has the shape of a horseshoe, and the remains of the temple of Mut. At the northern extremity of the avenue, which is of criosphinxes, is a propylon forming the front of a large court ending in a second propylon, which, like the other, is much ruined. Beyond this, but not in exactly the same direction, after a vacant space, the approach continues through two smaller propyla, the second of which is nearly destroyed. Each fronts a court, and at the end of the second of these courts was the great side entrance to the temple. The first and second propyla were, like the criosphinxes, monuments of King Har-em-heb, or Horus, of Dynasty XVIII., and were partly built of materials of a temple or palace of the sun-worshipping kings whom he overthrew. The third propylon is more ancient, for it bears the name of Thothmes III. and Amenophis II., as well as of subsequent kings; the age of the fourth is not certain; the name of Ramses II. occurs here, but it may have been founded before his time. There is an inclosure in the angle formed eastward by the third and fourth propyla with the great temple, which contains a sacred lake.

Adjoining the great crude-brick wall of inclosure at its northeastern portion is another containing the ruins of an important temple. The chief approach is through a stately portal of the Ptolemaic period, in the crude-brick wall. The temple to which it conducted was very beautiful and costly, as we can judge from its remains, which show with how much violence it was destroyed. It seems to have been founded under Dynasty XVIII. There are two small temples or chapels, one of the time of Achoris and the other of that of Nectanebes I. and II., in the same inclosure. Another crude-brick inclosure of small dimensions, near the southeast corner of that of the great temple, contains some unimportant remains of a small edifice.

This brief description will convey some idea of the magnitude of the temple of Amen-ra at Thebes with its appendages; but no one who has not seen that wonderful assemblage of ruins can picture to himself the massiveness of its castle-like propyla, the grandeur of its hall of columns, the beauty of its great obelisk, and the sublimity of its heaped-up ruins. Of the city of Thebes there are scarcely any remains. Doubtless its edifices were of perishable materials.

The great temple of Ramses II., which may be called the Rameusem of El-Kurneh, but is commonly, though incorrectly, known as the Memnonium, is situate at a distance of about a mile to the westward of the Setheum, and is, like it, on the edge of the desert, which here is much farther from the Nile. Notwithstanding that its condition is much more ruined than that of other edifices of Thebes, the beautiful architecture of what remains, and the historical interest of its spirited sculptures, render it altogether second alone in its attractions to the great pile of El-Karnak. A propylon, 225 feet in width, of which a great part has been thrown down, forms the front of the edifice. Through its portal we enter a spacious court 180 feet wide and 142 long. It had originally a double colonnade on either side, every column of which has been destroyed, while the side walls have been entirely demolished, and the end wall partially. On the back of the propylon are sculptured a battle and other scenes of a campaign in the king's eighth year. In this court is one of the most wonderful objects at Thebes, a colossal statue of Ramses II., broken in pieces, exceeding in its weight and equalling in its dimensions any other Egyptian statue. It was of a single block of red granite, and must have been transported hither from the quarries of Syene,

notwithstanding that its weight was, according to Sir Gardner Wilkinson's computation, about 887 tons $\frac{5}{8}$ cwt. It was sixty feet in height, representing the king seated on his throne, and was placed on the left side of the entrance to the second court.

To the southwest of the Rameusem of El-Kurneh, at a distance of less than half a mile, a mound just within the cultivable plain marks the site of a magnificent temple of Amenophis III., which may be called the Amenophium, and which, there is reason to believe, was destroyed by Cambyses. Of the obelisks and colossi which stood on either side of the approach of the Amenophium, all are thrown down except the two gigantic statues, one of which is known as the Vocal Memnon. The latter, indeed, was broken, but afterward restored. These colossi stand about a quarter of a mile to the southeast of the mound, where are the scanty remains of the temple. They are of hard gritstone, monolithic, and about forty-seven feet in height, with pedestals about twelve feet high. They represent Amenophis III. seated on his throne. Smaller though colossal standing statues of the king's mother, Queen Mut-em-wa, and of his wife, Queen Tai, rest against the space between the sides of the throne and the legs of the great statues, one at either extremity; while there are remains of two other statues of Queen Tai, of smaller size, standing between the feet of each colossus. The colossi are a little less than sixty feet apart, a distance judiciously chosen, so that they should neither seem smaller than they actually are, by being placed too far from each other, nor should be so near as to appear but a double statue.

The tomb of Ramses III. is among the most splendid of the royal sepulchres. Its length a little exceeds 400 feet, but from the nature of the rock its sculptures are less delicately executed than those of the tomb of Sete I. In cells on either side of its passage, a little within the entrance, are interesting paintings illustrating manners and customs, in one of which is the celebrated representation of the harpers.

The status of the Egyptian Government at the present time would be difficult to define, as it occupies the anomalous position of being a nominal autonomy, while at the same time it is *de jure* a province of Turkey, and *de facto* a British protectorate. Complications arising between the khedive's government and that of England led to the declaration of war by the latter power, which, on April 11, 1882, destroyed the fortresses of Alexandria and the power of the khedive. Since that time Egypt has been practically a British dependency. Of the condition of affairs prior to this, an idea can be best given by quoting from a writer of that period. He says:

In Egypt, as has been well said *L'Etat c'est le Khedive*. So far as the country itself is concerned the khedive is its personal, absolute, and independent sovereign; but his relations with the Porte are somewhat less simple. When Selim I. of Turkey conquered Egypt at the beginning of the sixteenth century, Memlook power was still too strong for complete subjection, and Selim was obliged to allow his new subjects liberal terms. Egypt still retained practical autonomy, the government being in the hands of a council of Memlook beys, presided over by a pasha, whose duty it was to look to the annual tribute paid to the Porte, but who possessed little or no actual power. This system was continued till the French occupation, and was reestablished when the English army evacuated the country. The Memlooks were still the virtual governors of Egypt, until their massacre by Mehemet Ali. The ambitious designs of this pasha opened the eyes of the Porte to the dangers by so lax a control of a governor unshackled by the council of beys. Menaced with the loss of Syria as well

as Egypt, the cause of the sultan was espoused by four of the Great Powers; and the Treaty of 1840, confirmed by the Convention of 1841, limited Mehemet Ali's power to the vice-royalty of Egypt, hereditably by the customary tribute, restricted the military and naval strength of the viceroy, and imposed certain other conditions, thus reducing Egypt once more to the state of a Turkish province. But in the reign of the present ruler a change has taken place in the relations between the sultan and his viceroy. A series of expensive negotiations with the Porte, ending with the raising of the tribute from £376,000 to £675,000, procured for Ismail Pasha the title of Khedive, and the right of succession from father to son. The limitation of the Egyptian army and other restrictions which still remained were removed in 1872 by another firman, confirming all the rights previously granted, and giving the khedive every substantial attribute of sovereignty, except only the *jus legationis*. The khedive is therefore virtually an independent sovereign, holding his power on the easy tenure of tribute and military aid in case of war.

The provincial administration (exclusive of the separate governors of the eight "cities") is divided among the mufters of the fourteen prefectures, the Feiyoum now being one, each subdivided into departments and communes, or cantons including several villages, governed by ma-moors, nazirs, or sheykhs el-beled, appointed by the Government and assisted and checked by councils of agriculture and an administrative council for each canton.

By the Convention of 1841 the Egyptian army was limited to 18,000 men, but this was raised to 30,000 by the firman of 1866, and now all restrictions have been done away with. The present force may be placed at an average peace strength of 30,000 men, regulated, however, on a short service system, so that not more than half this number are generally at one time with the colors.

The Egyptian navy hardly deserves notice. It consists at present of two frigates, two corvettes, four gunboats, and two sloops, all unarmored.

Mehemet Ali devoted considerable attention to the establishment of colleges and military schools, besides sending young men to Europe for purposes of scientific study. In Cairo and its environs he founded several elementary schools of a higher order than the native schools of the same class; a school of languages; a printing press at Boolak, from which many valuable publications have issued; and a school of medicine at Kasr-el-'Eynce, between Cairo and Masr-el-'Atekeh, which has done excellent work.

The public works carried out in Egypt during the present reign would fill a long catalogue, without reckoning the Suez Canal, for an account of which see CANAL. Railway communication has been established between Alexandria, Cairo, Ismailia, Suez, Damietta, the Feiyoum, and Asyoot, the various lines covering over 1200 miles. A Soodan railway, from Wadec Halfeh to Hennek, and from near Dunkalah to Khartoom, involving costly and difficult engineering for a length of more than 1,000 miles, has been built with the view of shortening the passage to India, and bringing the produce of the rich southern soil into easier connection with Cairo; these works are, however, at a standstill.

The manufactures of Egypt have been in a declining state for several centuries. Mehemet Ali tried to promote them, by establishing large manufactories of cotton, silk, and woolen goods, tarbooshes, etc., and, especially in Upper Egypt, sugar-refineries. Ibrahim Pasha was much opposed to his father's policy, and in pursuance of his own views he laid out extensive plantations of olive and other trees, erected powerful steam-

engines for the irrigation of his lands, and on all his estates endeavored to encourage agriculture. It cannot be doubted that, had he lived, the correctness of his conviction that Egypt is an agricultural, not a manufacturing, country would, under his rule, have been fully verified. Mehemet Ali introduced cotton and largely cultivated it; the Turkish grandees found that from it they could extract more grain than from other field produce, and large tracts were speedily devoted to its culture. The necessity, however, of excluding the waters of the Nile has caused several destructive inundations; and so long as the cotton growth remained a monopoly of the pasha it was no means of enrichment to the producer. Now, however, that the monopoly is abolished, the trade in cotton is greatly increasing, and this produce will undoubtedly become every year a more important item in the wealth of the country.

Agriculture.—The official report for 1887 makes the cultivated area 4,961,462 acres, an increase of 247,000 acres in three years. The principal products were cotton and wheat.

The values of the principal articles of export for the year 1886 were cotton, \$35,640,000; cotton seed, \$6,100,000; beans, \$2,300,000; wheat, \$400,000; sugar, \$2,250,000; skins, \$550,000; rice, \$540,000; and wool, \$325,000,000.

Commerce.—The total value of import and export for 1886 amounted to \$89,889,255, in which England shared with \$41,500,000, the United States with \$400,000.

The number of vessels that passed through the Suez Canal in 1886 was 3,100, with a tonnage of 8,183,313. Of these 1,254,417 tons were English. Not one ton of American shipping was recorded.

In 1886 there were 900 miles of railway in operation. The government lines of telegraph had a total length of 3,172 miles.

The post office carried 7,620,000 inland and 5,075,000 foreign letters. In 1887 the total correspondence numbered 12,916,000 letters.

EHRENBREITSTEIN, a small town in Prussia, in the circle of Coblenz, situated on the right bank of the Rhine, and connected with the town of Coblenz by a bridge of boats, is of importance as possessing a magnificent fortress, erected upon a precipitous rock 401 feet above the Rhine.

EIBENSTOCK, a town in Saxony, in the circle of Zwickau, is situated on the borders of Bohemia; sixteen miles south-southeast of Zwickau.

EICHENDORFF, JOSEPH, FREIHERR VON (1788-1857), a German poet and romance-writer, was born at Lubowitz, near Ratibor, in Prussia. He studied law at Halle and Heidelberg from 1805 to 1808. After a visit to Paris he went to Vienna, where he resided until 1813, when he joined the Prussian army as a volunteer. When peace was concluded, in 1815, he left the army, and in the following year he was appointed to a judicial office at Breslau. He subsequently held similar offices at Dantzic, Königsberg, and Berlin. Retiring from the public service in 1844, he afterward resided successively in Dantzic, Vienna, Dresden, and Berlin. He died at Neisse, November 26, 1857. Eichendorff was one of the most distinguished of the later members of the German romantic school. His genius was essentially lyrical, and he was deficient in the distinctive dramatic faculty. On this account, he is most successful in his shorter romances and dramas, where constructive power is least called for. His first work, a romance entitled *Ahnung und Gegenwart*, appeared in 1815. This was followed, at short intervals, by several others, among which the foremost place is, by general consent, assigned to *Aus dem Leben eines Taugenichts* (Berlin, 1824), which has often been reprinted. Of his dramas may be

mentioned *Esselin von Romano*, a tragedy (1828); *Meierbeths Glück und Ende*, a tragedy (1828); and *Die Freier*, a comedy (1833). He also translated Calderon's *Geistliche Schauspiele* (1846), from the Spanish. Eichendorff's lyric poems were of a very high order, and many of them were set to music by composers of eminence. In the later years of his life he published several valuable works on subjects in literary history and criticism.

EICHHORN, JOHANN GOTTFRIED, an eminent scholar, historian, and writer on Biblical criticism, was born at Dörrenzimmern, in the duchy of Hohenlohe-Oehringen, on October 16, 1752. In 1770, he entered the university of Göttingen, where he remained till 1774. In 1774, he received the rectorship of the gymnasium at Oehdriff, and, in the following year, was made professor of Oriental languages at Jena. On the death of Michaelis in 1788, he was elected ordinary professor of philosophy at Göttingen, where he lectured, not only on the Oriental languages and on the exegesis of the Old and New Testaments, but also on general history. In 1811 he was made doctor of theology; in 1813 joint-director of the Royal Scientific Society of Göttingen; and, in 1819, Geheimer Justizrath of Hanover. His health was shattered by an attack of inflammation of the lungs, in the year 1825, but he regularly continued his prelections to a large number of students, until attacked by fever on June 14, 1827. He died on the 27th of that month. Eichhorn is the author of a good many historical works, but it is as a Biblical critic that he is best known.

EICHHORN, KARL FRIEDRICH (1781-1854), a son of the preceding, and a learned writer on jurisprudence, was born at Jena, on November 20, 1781.

EICHSTÄDT, or EICHSTÄTT, originally Eistet, a town in the Bavarian district of Franconia, is situated in a deep valley on the Altmühl, about thirty-five miles south of Nuremberg.

EIDER, a large marine Duck, the *Somateria mollissima* of ornithologists, famous for its down, which, from its extreme lightness and elasticity, is in great request for filling bed-coverlets. This bird generally frequents low, rocky islets near the coast, and in Iceland and Norway has long been afforded every encouragement and protection, a fine being inflicted for killing it during the breeding season, or even for firing a gun near its haunts, while artificial nesting-places are in many localities contrived for its further accommodation. From the care thus taken of it in those countries it has become exceedingly tame at its chief resorts, which are strictly regarded as property, and the taking of eggs or down from them, except by authorized persons, is severely punished by law. In appearance the Eider is somewhat clumsy, though it flies fast and dives admirably. On the west coast of North America the Eider is represented by a species resembling the Atlantic bird. In the same waters two other fine species are also found (*S. fischeri* and *S. stellieri*), one of which (the latter) also inhabits the Arctic coast of Russia and East Finmark and has twice reached England. The Labrador Duck (*S. labradoria*), which is now believed to be extinct, also belongs to this group.

EILENBURG, a town of Prussia, in the province of Saxony, government of Merseburg, and circle of Delitzsch, is situated on an island formed by the Mulde, about eighteen and one-half miles northeast of Leipzig.

EINBECK, or EIMBECK, a town of Prussia, in the landrost of Hildesheim, and province of Hanover, formerly chief town of the principality of Grubenhagen, is situated on the Ilme, thirty-nine miles south of Hanover.

ENSIEDELN, a town in the canton of Schwyz, in

Switzerland, situated in the valley of the Sihl, eight miles north-northeast of Schwyz. The Benedictine abbey of Einsiedeln, founded about the middle of the ninth century, was several times partially or wholly destroyed by fire. The present edifice, in the Italian style, was erected in 1704-19, and stands at an elevation of 2,985 feet above sea-level. It contains a library of 40,000 volumes, 1,190 manuscripts, and 1,015 incunabula, and in connection with it are a priests' seminary, a gymnasium, and a lyceum. The Emperors Otto the Great and Henry II. made valuable presents to the abbey, and in 1274 Rudolf of Hapsburg created the abbot a prince. The treasury was plundered by the French in 1798. The abbey has for centuries been noted for its sacred image of the Virgin, which brings to it yearly an average of 150,000 pilgrims, chiefly on September 14th. Most of the buildings of Einsiedeln are inns for the entertainment of the pilgrims, with whom the inhabitants traffic in missals, sacred pictures, rosaries, crucifixes, and medallions. The Reformer Zwingli preached at Einsiedeln in 1516-18, and not far from the town is the house where Paracelsus is said to have been born.

EISENACH, the chief town of the Eisenach circle and of the administrative department of Saxe-Weimar-Eisenach, lies in a romantic district at the northwest end of the Thuringian wood.

EISENBERG, a town in the west circle of the duchy of Saxe-Altenburg, and twenty-four miles west-southwest of Altenburg. It is very old, and has changed possessors more than once, but was joined to Saxe-Altenburg in 1826.

EISENBURG, or VAS VÁRMEGYE, a county of Western Hungary, on the Styrian frontier, inclosed on the north, east, and south by the counties of Sopron, Veszprim, and Szala, and on the west by the Styrian circle of Gratz. Its area is 1,536 geographical square miles.

EISENSTADT, or KIS-MARTON, a royal free town of East Hungary, in the vármegye or county of Sopron or Oedenburg, situated at the foot of the Leitha mountain range, not far from the west bank of Lake Neusiedl, twenty-six miles southeast of Vienna. The town is famous as being the seat of Prince Eszterházy, whose castle of Kis-Marton is one of the finest palaces in Hungary.

EISLEBEN, the chief town of the Mansfield circle, in the government of Merseburg, province of Saxony, Prussia, is situated on the railway from Halle to Nordhausen and Cassel, eighteen miles west from Halle. It consists of an old and a new town, the former being surrounded by walls. In the vicinity are extensive copper and silver mines, and the town itself possesses smelting furnaces, several breweries, and manufactories of linen, tobacco, and saltpeter.

EISTEDDFOD, YR, the national bardic congress of Wales, the objects of which are to encourage bardism and music and the general literature of the Welsh, to maintain the Welsh language and customs of the country, and to foster and cultivate a patriotic spirit amongst the people. This institution, so peculiar to Wales, is of very ancient origin. The term *Eisteddfod*, however, which means "a session" or "sitting," was probably not applied to bardic congresses before the twelfth century.

The first Eisteddfod of which any account seems to have descended to us was one held on the banks of the Conway in the sixth century, under the auspices of Maelgwn Gwynedd, Prince of North Wales. Maelgwn on this occasion, in order to prove the superiority of vocal song over instrumental music, is recorded to have offered a reward to such bards and minstrels as should swim over the Conway. There were several competitors, but on their arrival on the opposite shore,

the harpers found themselves unable to play, owing to the injury their harps had sustained from the water, while the bards were in as good tune as ever. King Cadwaladr also presided at an Eisteddfod about the middle of the seventh century.

EJECTMENT, in English law, was an action for the recovery of the possession of land, together with damages for the wrongful withholding thereof. In the old classification of actions, as real or personal, this was known as a mixed action, because its object was twofold, viz., to recover both the realty and personal damages.

EKATERINBURG, or **YEKATERINBURG**, a town of Asiatic Russia, at the head of a department of the province of Perm, on the Siberian highway, about 238 miles to the southeast of Perm.

EKATERINODAR, the chief town of the Russian government of Kuban, on the right bank of the Kuban, near the confluence of the Karasuk, 1,400 miles from St. Petersburg.

EKATERINOSLAFF, or **EKATERINOSLAVSKAYA GUBERNIE**, a government of Southern Russia, which lies partly to the west of the Dnieper, stretches east to the Donetz and the Kalmius, and in the south reaches the Sea of Azoff between the mouths of the Berda and the Kalmius. It is watered by the Dnieper for 220 miles, and bounded by the Donetz for 132.

EKATERINOSLAFF, a town of European Russia, capital of the above government, is situated on the right bank of the Dnieper, at a height of 210 feet above the sea, 984 miles from St. Petersburg and 600 from Moscow.

EKHMIN, or **AKHMIN**, a town of Upper Egypt, a short distance from the right bank of the Nile, between two and three miles above Suhag.

Ekhmin, in Coptic Khmin or Shmin, is the ancient Chemmis or Panopolis, a chief town of the Chemmite nome in the Thebaid, and, according to Strabo, inhabited by skillful stone-cutters and linen weavers. It was reputed one of the oldest cities in the country.

EKRON, in the Septuagint and Apocrypha Accaron, a royal city of the Philistines, identified with the modern Syrian village of Akir, five miles from Ramleh, on the southern slope of a low ridge separating the plain of Philistia from Sharon.

ELAGABALUS. See **HELIOGABALUS**.

ELAM. This is the name given in Scripture to the province of Persia called Susiana by the classical geographers from Susa or Shushan its capital.

ELAND is the largest and most valuable member of the antelope family. It is fully equal to the horse in size, standing six feet high at the shoulders, and measuring nine feet from the nose to the root of the tail. In robustness of build it resembles the ox, and forms the type of the bovine subdivision of antelopes. Its neck is thick, and is furnished with a prominent dewlap fringed with long hair. Except on the ridge of the back the fur is short, and is usually of a reddish fawn color above and white beneath. Its horns are about twenty inches in length, nearly straight, and in the male are surrounded throughout the greater part of their length with a spiral wreath; in the female they are more slender, and the spiral ridge is indistinct or absent. The eland is a native of South Africa, where it roams in considerable herds over the open plains, "rejoicing," says a recent traveler, "in the belts of shaded hillocks, and in the isolated groves of *Acacia capensis*, which, like islands in the ocean, are scattered over many of the stony and gravelly plains of the interior." It is slow in its movements as compared with the other antelopes, and is readily captured, while in disposition it is exceedingly gentle, and thus seems eminently adapted for domestication. It breeds readily in confinement, and herds of

eland have already been introduced into various parks in Britain. Its flesh is highly prized as an article of food, resembling beef, it is said, in grain and color, but being more delicate and better flavored. The eland is remarkable for the quantity of fat which it takes on, exceeding in this respect all other large game.

EL-ARASH, **L'ARASH**, or in French **LARACHE**, a town of Morocco on the Atlantic coast, about forty-five miles south of Tangier, is picturesquely situated on a rocky height to the south of the embouchure of the Wady Loukhous or Lixus.

ELASTICITY of matter is that property in virtue of which a body requires force to change its bulk or shape, and requires a continued application of the force to maintain the change, and springs back when the force is removed, and, if left at rest without the force, does not remain at rest except in its previous bulk and shape. The elasticity is said to be perfect when the body always requires the same force to keep it at rest in the same bulk and shape and at the same temperature through whatever variations of bulk, shape and temperature it be brought. A body is said to possess some degree of elasticity if it requires any force to keep it in any particular bulk or shape. It is convenient to discuss elasticity of bulk and elasticity of shape sometimes separately and sometimes jointly.

Every body has some degree of elasticity of bulk. If a body possesses any degree of elasticity of shape it is called a solid; if it possesses no degree of elasticity of shape it is called a fluid.

All fluids possess elasticity of bulk to perfection. Probably so do all homogeneous solids, such as crystals and glasses. It is not probable that any degree of fluid pressure (or pressure acting equally in all directions) on a piece of common glass, or rock crystal, or of diamond, or on a crystal of bismuth, or of copper, or of lead, or of silver, would make it denser after the pressure is removed or put it into a condition in which at any particular intermediate pressure it would be denser than it was at that pressure before the application of the extreme pressure. Malleable metals and alloys, on the other hand, may have their densities considerably increased and diminished by hammering and by mere traction. By compression between the dies used in coining, the density of gold may be raised from 19.258 to 19.367, and the density of copper from 8.535 to 8.916, and Mr. M'Farlane's experiments show a piece of copper wire decreasing in density from 8.91 to 8.835 after successive simple tractions, by which its length was increased from 287 centimeters to 317 centimeters, while its modulus of rigidity decreased from 443 to 426 million grammes per square centimeter.

The elasticity of shape of many solids is not perfect; it is not known whether it is perfect for any. It might be expected to be perfect for glass and rock crystal and diamond and other hard, brittle, homogeneous substances; but experience proves that at all events for glass it is not so, and shows on the contrary a notable degree of imperfection in the torsional elasticity of glass fibers. It might be expected that in copper and soft iron and other plastic metals the elasticity of shape would be very imperfect; experiment shows, on the contrary, that in copper, brass, soft iron, steel, platinum, provided the distortion does not exceed a certain limit in each case, elasticity of shape is remarkably perfect, much more perfect than in glass. It is quite probable that even in the softer metals—zinc, tin, lead, cadmium, potassium, sodium, etc.—the elasticity of shape may be as perfect as in the metals mentioned above, but within narrower limits as to degree of distortion. Accurate experiment is utterly wanting, to discover what is the degree of imperfection, if any, of the elasticity of

any metal or alloy, when tested within sufficiently narrow limits of distortion.

The complete fulfillment of the definition of perfect elasticity is not proved by mere permanence of the extreme configurations assumed by the substance when a stated amount of the stress is alternately applied and removed. This condition might be fulfilled, and yet the amount of elastic force might be different with the same palpable configuration of the body during gradual augmentation and during gradual diminution of the stress.

The degree of distortion within which elasticity of shape is found is essentially limited in every solid. Within sufficiently narrow limits of distortion every solid shows elasticity of shape to some degree — some solids to perfection, so far as we know at present. When the distortion is too great, the body either breaks or receives a permanent bend (that is, such a molecular disturbance that it does not return to its original figure when the bending force is removed). If the first notable dereliction from perfectness of elasticity is a breakage, the body is called brittle — if a permanent bend, plastic or malleable or ductile. The metals are generally ductile; some metals and metallic alloys and compounds of metals with small proportions of other substances, are brittle; some of them brittle only in certain states of temper, others it seems essentially brittle. The steel of before the days of Bessemer and Siemens is a remarkable instance. When slowly cooled from a bright red heat, it is remarkably tough and ductile. When heated to redness and cooled suddenly by being plunged in oil or water or mercury, it becomes exceedingly brittle and hard (glass-hard, as it is called), and to ordinary observation seems incapable of taking a permanent bend (though probably careful observation would prove it not quite so). The definition of steel used to be *approximately pure iron capable of being tempered glass-hard, and again softened to different degrees by different degrees of heat*. Now, the excellent qualities of iron made by Bessemer's and Siemen's processes are called steel, and are reckoned best when *incapable of being tempered glass-hard*, the possibility of brittleness supervening in the course of any treatment which the metal may meet with in its manufacture being an objection against the use of what was formerly called steel for ship's plates, ribs, stringers, etc., and for many applications of land engineering, even if the material could be had in sufficient abundance.

If we reckon by the amount of pressure, there is probably no limit to the elasticity of bulk in the direction of increase of pressure for any solid or fluid; but whether continued augmentation produces continued diminution of bulk toward zero without limit, or whether for any or every solid or fluid there is a limit toward which it may be reduced in bulk, but smaller than which no degree of pressure, however great, can condense it, is a question which cannot be answered in the present state of science. Would any pressure, however tremendous, give to gold a density greater than 19.6, or to copper a density greater than 9.0, after the pressure is removed? But whether the body be fluid or a continuous non-porous solid, it probably recovers the same density, however tremendously it may have been pressed, and probably shows perfect elasticity of bulk through the whole range of positive pressure from zero to infinity, provided the pressure has been equal in all directions like fluid pressure. As for negative pressure, we have no knowledge of what limit, if any, there may be to the amount of force which can be applied to a body pulling its surface out equally in all directions. The question of how to apply the negative pressure is inextricably involved with that of the body's power to resist. The upper part of the mercury of a barometer

adhering to the glass above the level corresponding to the atmospheric pressure is a familiar example of what is called negative pressure in liquids. Water and other transparent liquids show similar phenomena, another of which is the warming of water above its boiling point in an open glass or metal vessel varnished with shellac. Attempts to produce great degrees of this so-called negative pressure are baffled by what seems an instability of the equilibrium which supervenes when the negative pressure is too much augmented. It is a very interesting subject for experimental inquiry to find how high mercury or water or any other liquid can be got to stand above the level corresponding to the atmospheric pressure in a tall, hermetically sealed tube, and how many degrees a liquid can, with all precautions, be warmed above its boiling point. In each case it seems to be by a minute bubble forming and expanding somewhere at the boundary of the liquid, where it is in contact with the containing vessel, that the possible range of the negative pressure is limited, judging from what we see when we carefully examine a transparent liquid, or the surface of separation between mercury and glass, in any such experiment. The contrast of the amounts of negative pressure practically obtainable or obtained hitherto in such experiments on liquids (which are at the most those corresponding to the weight of a few meters of the substance), with that obtainable in the case of even the weakest solids, is remarkable; and as for the strongest, consider for instance seventeen nautical miles of steel pianoforte wire hanging by one end. When a cord, or rod, or wire of any solid substance hangs vertically, the negative pressure (for example, 23,000 atmospheres in the case just cited) in any transverse section is equal to the weight of the part hanging below it. It is an interesting question not to be answered by any experiment easily made or even devised — how much would the longitudinal pull which can be applied to a cord, rod, or wire without breaking it be augmented (probably augmented, but possibly diminished) by lateral pull applied all round the sides so as to give equal negative pressure in all directions?

ELATERIUM, a drug consisting of a sediment deposited by the juice of the fruit of *Ecbalium Elaterium*, the squirting cucumber. It is a violent cathartic.

ELBA is an island in the Mediterranean Sea, forming part of the Italian province of Livorno, and lying about six miles from the mainland of Italy, from which it is separated by the channel of Piombino, and about thirty-four miles east of Corsica. It has a very irregular coast outline, is eighteen miles long and two and one-fourth to ten and one-half miles broad, and has a total area of nearly ninety square miles. It is throughout mountainous, and the highest point, Monte Capanne, is 2,925 feet above sea-level.

ELBE, the Albis of the Romans and the Labe of the Bohemians, a large river of Germany, with a total length of 705 miles, and a drainage area of about 55,000 square miles. It rises in Bohemia not far from the frontiers of Silesia, on the southern side of the Riesengebirge or Giants' Mountains. Augmented successively by the Adler, the Iser, the Moldau, and the Eger, it cuts its way through the Mittelgebirge of Bohemia, traverses the sandstone mountains of Saxon Switzerland, and with a general northwest direction continues to meander through Saxony, Anhalt, and Hanover, until at length it falls into the German Ocean. The principal towns on its banks are Leitmeritz, Pirna, Dresden, Meissen, Torgau, Wittenberg, Magdeburg, Wittenberge, Harburg, Hamburg, and Altona. A short distance above Hamburg the stream divides into a number of branches, but they all reunite before reaching the ocean. At its source the Elbe is about 4,600 feet above

the level of the sea; after the first forty miles of its course it is still 658 feet; but at Dresden it is only 279, and at Arneburg in Brandenburg only 176. At Königsgratz the width is about 100 feet, at the mouth of the Moldau about 300, at Dresden 960, and at Magdeburg over 1,000. The tide is perceptible as far up as Geesthacht. Of the fifty and more tributaries belonging to the system, the most important are the Moldau, the Eger, the Mulde, and the Saale—the Moldau having a course of 267 miles, the Eger of 235, the Mulde of 185, and the Saale of 220. Though the channel in some places, especially in the estuary, is encumbered with sandbanks and shallows, the Elbe is of great importance as a means of communication, steamboats being able to ascend the main stream as far as Melnick, and to reach Prague by means of the Moldau. Some idea of the extent of its traffic may be obtained from the statement that in 1870, at Schandau, 489 passenger steamers and 2,658 vessels and barges of various kinds passed up the stream, and 489 passenger steamers, 2,865 ships, and 1,505 rafts down the stream. By one line of canal it communicates with Lübeck, by another with Bremen, and by others with the great network of Mecklenburg and Brandenburg; and several new lines are projected, by which a direct way will be opened up to Hanover, Leipsic, and various other important cities.

ELBERFELD, a manufacturing town of Rhenish Prussia in the government of Düsseldorf, situated in the narrow valley of the Wupper, about nineteen miles east of the town of Düsseldorf on the Belg and Mark Railway. Though for most part of modern erection, it has a large number of irregular and narrow streets, and altogether presents rather an unprepossessing appearance; the very river, polluted as it is with the refuse of dye-works and factories, rather increasing the unseemliness. The newer quarters, however, must be excepted from this description, and many of the public buildings are large and handsome. A great variety of textile fabrics in cotton, wool, and silk are manufactured on an extensive scale, and besides dye-works and chemical works of proportionate importance, there may be mentioned button-factories, lace-factories, a brewery, a foundry, and soap-works. Population, 81,000.

ELBEUF, a town of France in the department of Seine Inférieure, thirteen miles south of Rouen, on the left bank of the Seine, with a station on the railway between Oissel and Serquigny.

ELBING, a seaport town of Prussia, at the head of a circle in the government of Dantzig, thirty-six miles east-southeast of the city of that name, on the Elbing, a small river which flows into the Frische Haff about four miles from the town, and is united with the Nogat or eastern arm of the Vistula by means of the Krafiohl Canal.

ELCHE, a town of Spain, in the province of Alicante, six miles from the sea, on the river Vinalopo.

ELDAD BEN MALCHI, also surnamed Ha-Dani, Abu-Dani, Daud-Ha-Dani, or the Danite, a Jewish traveler of the ninth century of the Christian era, chiefly interesting on account of the light (or darkness) which his writings throw on the question of the Lost Tribes. The date and place of his birth are not accurately known, but he was a native either of South Arabia or of Media. About 860 he set out with a companion to visit his Jewish brethren in Africa and Asia. Their vessel was wrecked, and they fell into the hands of cannibals, but Eldad was saved from the inhuman fate of his comrade, first by his leanness and afterward by the opportune invasion of a neighboring tribe. He spent four years with his new captors, was ransomed by a fellow-countryman, continued his journey as far, according to one interpretation of his story, as China, spent several years at

Keirwan and Tunis, and died on a visit to Cordova in Spain. The work which goes under his name is written in Hebrew, and consists of six chapters, probably abbreviated from the original form of the narrative. It was first printed at Constantinople in 1518, and the same recension afterward appeared at Venice in 1540 and 1605, and at Jessnitz in 1722. A Latin version by Genebrard was published at Paris in 1563, and was afterward incorporated in the translator's *Chronographia Hebraeorum*; a German version appeared at Prague in 1695, and another at Jessnitz in 1723. One of the most curious passages in the work is the account of the Levites, who, says the author, were miraculously guided to the land of Havila, and are there protected from their enemies by the mystic river Sabbath, which on the Sabbath is calm and involved in delusive mists, and on the other days of the week runs with a fierce and fordless current.

ELDER, the name of an office both in the Jewish and in the Christian Church, which is used in modern times mostly by Presbyterians. As first applied, among the ancient Jews, for example, it had no doubt a literal fitness, indicating the responsibility and authority that naturally occur in any community to those advanced in age. As the office gradually came to be fixed in its character and limited in the number of its occupants, the name lost something of its literal fitness, the responsibility and authority becoming attached to it without regard to the age of the occupant. In this respect the kindred terms alderman, senator, etc., have had a similar history. In the Old Testament usage of the word it is impossible to fix any exact point of time at which it passed from its primary or etymological to its secondary or official sense, as the process was a gradual one, and old age continued to be a leading qualification for the office long after it had ceased to be essential.

In the New Testament the word is used to denote both an order of the Jewish economy and an office of the Christian Church. Its precise significance in the latter usage is the main subject in the standing controversy between Episcopalians and Presbyterians, and a statement of the arguments on either side belongs properly to the articles on Episcopacy and Presbytery respectively. Reference must also be made to the article on Presbytery for a full statement of the qualifications, duties, and powers of elders in a Presbyterian church.

ELDER, the popular designation of the deciduous shrubs and trees constituting the genus *Sambucus* of the natural order *Caprifoliaceæ*.

ELDON, JOHN SCOTT, BARON, and afterward EARL OF, Lord High Chancellor of England, was born at Newcastle on June 4, 1751. He became a member at the Middle Temple in January, 1773, and in February took his degree of M.A. at Oxford. In 1776 he was called to the bar, intending at first to establish himself as an advocate in his native town, a scheme which his early success led him to abandon, and he soon settled to the practice of his profession in London, and on the Northern Circuit. Thus, at last, had he started on the high road to the chancellorship, having narrowly escaped becoming a coal-fitter, a country parson, a provincial barrister, and, according to one account, a retailer of figs and raisins.

In the autumn of the year in which he was called to the bar his father died, leaving him a legacy of £1,000 over and above the £2,000 previously settled on him. He was already an excellent lawyer, and succeeded fairly well on his first circuit, though not so well as to satisfy him of the safety of attempting a London career. He therefore took a house in Newcastle, with the view of establishing himself there, but still delayed to leave

London; and his prospects there suddenly improving, he assigned the Newcastle house to his brother Henry. In his second year at the bar his prospects began to brighten. His brother William, who by this time held the Camden professorship of ancient history, and enjoyed an extensive acquaintance with men of eminence in London, was in a position materially to advance his interests. Among his friends was the notorious Bowes of Gibside, to the patronage of whose house the rise of the Scott family was largely owing. Bowes having contested Newcastle and lost it, presented an election petition against the return of his opponent. Young Scott was retained as junior counsel in the case, and though he lost the petition he did not fail to improve the opportunity which it afforded for displaying his talents. This engagement, in the commencement of his second year at the bar, and the dropping in of occasional fees, must have raised his hopes; and he now abandoned the scheme of becoming a provincial barrister. A year or two of dull drudgery and few fees followed, and he began to be much depressed. But in 1780 we find his prospects suddenly improved, by his appearance in the case of *Ackroyd v. Smithson*, which became a leading case settling a rule of law; and young Scott, having lost his point in the inferior court, insisted on arguing it, on appeal, against the opinion of his clients, and carried it before Lord Thurlow, whose favorable consideration he won by his able argument. The same year Bowes again retained him in an election petition; and in the year following Scott greatly increased his reputation by his appearance as leading counsel in the Clitheroe election petition. From this time his success was certain. In two years he obtained a silk gown, and was so far cured of his early modesty that he declined accepting the king's counselship if precedence over him were given to his junior, Mr. Erskine, though the latter was the son of a peer and a most accomplished orator. He was now on the high way to fortune. His health, which had hitherto been but indifferent, strengthened with the demands made upon it; his talents, his power of endurance, and his ambition, all expanded together. He enjoyed a considerable practice in the northern part of his circuit, before parliamentary committees, and at the Chancery bar, and was in sight of the honors and emoluments of the solicitor and attorney generalships. By 1787 his practice at the Equity bar had so far increased that he was obliged to give up the eastern half of his circuit (which embraced six counties), and attend it only at Lancaster.

Shortly after taking the silk gown, he entered Parliament for Lord Weymouth's close borough of Wobley, which Lord Thurlow obtained for him without solicitation. In Parliament he gave a general and independent support to Pitt. His first parliamentary speeches were directed against Fox's India Bill. They were unsuccessful. In one he aimed at being brilliant; and becoming merely labored and pedantic, he was covered with ridicule by Sheridan, from whom he received a lesson which he did not fail to turn to account. In 1788 Pitt conferred upon him the honor of knighthood and the office of solicitor-general; and at the close of this year he attracted attention by his speeches in support of Pitt's resolutions on the state of the king (George III., who then labored under a mental malady) and the delegation of his authority. It is said that he drew the Regency Bill, which was introduced in 1789. In 1793 Sir John Scott was promoted to the office of attorney-general, in which it fell to him to conduct the memorable prosecutions for high treason against British sympathizers with French Republicanism—amongst others, against the celebrated Horne Tooke. These prosecutions, in most cases, were no doubt instigated by

Sir John Scott, and were the most important proceedings in which he was ever professionally engaged. He has left on record, in his *Anecdote Book*, a defense of his conduct in regard to them. In 1799 the office of chief justice of the Court of Common Pleas falling vacant, Sir John Scott's claim to it was not overlooked; and after seventeen years' service in the Lower House, he entered the House of Peers as Baron Eldon. In February, 1801, the ministry of Pitt was succeeded by that of Addington, and the chief justice now ascended the woolsack. The chancellorship was given to him professedly on account of his notorious anti-Catholic zeal. From the Peace of Amiens (1801) till 1804, Lord Eldon appears to have interfered little in politics. In the latter year we find him conducting the negotiations which resulted in the dismissal of Addington and the recall of Pitt to office as prime minister. Lord Eldon was continued in office as chancellor under Pitt; but the new administration was of short duration, for on January 23, 1806, Pitt died, worn out with the anxieties of office, and his ministry was succeeded by a coalition, under Lord Grenville. The death of Fox, who became foreign secretary and leader of the House of Commons, soon, however, broke up the Grenville administration, and in the spring of 1807, Lord Eldon once more, under Lord Liverpool's administration, returned to the woolsack, which, from that time, he continued to occupy for about twenty years, swaying the Cabinet, and being in all but name prime minister of England. It was not till April, 1827, when the premiership, vacant through the paralysis of Lord Liverpool, fell to Mr. Canning, the chief advocate of Roman Catholic emancipation, that Lord Eldon, in the seventy-sixth year of his age, finally resigned the chancellorship. When, after the two short administrations of Canning and Goderich, it fell to the Duke of Wellington to construct a Cabinet, Lord Eldon expected to be included, if not as chancellor, at least in some important office, but he was overlooked, at which he was much chagrined. Notwithstanding his frequent protests that he did not covet power, but longed for retirement, we find him again, so late as 1835, within three years of his death, in hopes of office under Peel. He spoke in Parliament for the last time in July, 1834.

In 1821 Lord Eldon had been created earl by George IV., whom he managed to conciliate, partly, no doubt, by espousing his cause against his wife, whose advocate he had formerly been, and partly through his reputation for zeal against the Roman Catholics. In the same year, his brother William, who from 1798 had filled the office of judge of the High Court of Admiralty, was raised to the peerage under the title of Lord Stowell.

Lord Eldon's wife, his dear "Bessy," his love for whom is a beautiful feature in his life, died before him, on June 28, 1831. By nature she was of simple character, and by habits acquired during the early portion of her husband's career almost a recluse. Two of their sons reached maturity—John, who died in 1805, and William Henry John, who died unmarried in 1832. Lord Eldon himself survived almost all his immediate relations. His brother William died in 1836. He himself died, in London, in his eighty-seventh year, on January 13, 1838, leaving behind him two daughters, Lady Frances Banks and Lady Elizabeth Repton, and his grandson, who succeeded him. "When his remains lay in state in Hamilton Place," says Lord Campbell, "large numbers of all classes went to see the solemn scene; and when the funeral procession, attended by the carriages of the princes of the blood, many members of the peerage, and all the dignitaries of the law, blackened the way, dense crowds stood uncovered, respect-

fully gazing at it as it passed." His remains were interred in the family vault in the chapel of Kingston, in Dorsetshire. The fortune which he left behind him exceeded in amount £500,000.

EL DORADO, that is, in Spanish, "The Golden," a mythical country long believed to exist in the northern part of South America. The origin of the legend has been variously explained, some supposing that the micaceous quartz in the valley of the Essequibo was mistaken for gold ore, while others find the nucleus of the story in the fact that the high priest of Bogotà was accustomed to sprinkle himself with gold dust, which was afterward washed off in a neighboring lake. It hardly seems necessary, however, to accept either, or, indeed, any theory of explanation: the minds of the Spanish explorers had been dazzled by the wealth of their earlier conquests, and the most brilliant imagination seemed to have a possibility of fulfillment. Martinez, a Spaniard, who had been set adrift on the sea, asserted that he was flung on the coast of Guiana, and conducted inland to a city called Manoa, which was governed by a king in alliance with the Incas, and lavished the precious metals on its roofs and walls. Orellana, who passed down the Rio Napo to the valley of the Amazon in 1540, also brought back an account of a land of fabulous wealth. Notwithstanding the failure of expedition after expedition, the fable continued a potent allurements for adventurous spirits.

EL DORADO, the county seat of Butler county, Kansas, is situated on Walnut creek in El Dorado township, and on the Atchison, Topeka and Santa Fe and Missouri Pacific railroads. The population is 6,000. There are five churches, a high school, intermediate and primary schools, one daily and three weekly papers, two national and two State banks, and an opera-house, public halls and a number of hotels.

ELEANOR, of Aquitaine, Queen of France and afterward of England, was the daughter of William IX., the last duke of Guienne, and was born in 1122. She succeeded her father in 1138, and was married the same year to Louis VII. of France. Her lively and somewhat frivolous manners, and her love of pleasure, did not fit her for the society of a husband who was naturally austere, and who from religious conviction had adopted many ascetic habits. They became gradually estranged, and in the Holy Land, whither she had accompanied Louis in 1147, their quarrels became so frequent and so bitter that at last a divorce was agreed upon, which on their return to France was completed under the pretext of kinship, March 18, 1152. Six months afterward she gave her hand and her possessions to Henry of Navarre, who in 1155 mounted the throne of England as Henry II. That the duchy of Guienne should thus become permanently annexed to the English crown was naturally displeasing to Louis, and the indirect consequence of his displeasure was protracted wars between France and England. In other respects also the marriage had unhappy consequences. The infidelities of Henry, and the special favors he showed to one of his mistresses, so greatly aroused Eleanor's jealousy, that she incited her son Richard to rebellion, and also intrigued with her former husband to get him to lend his influence to the great league formed against Henry in 1173. Her son had fled to Louis, and she was preparing to follow him when she was arrested and placed in confinement, where she remained till the death of her husband in 1189. As soon as he died she regained her liberty, and reigned as regent until Richard's arrival from France. She also held this position during Richard's absence in the Holy Land, for which he left in 1190. After his escape, in 1194, from the captivity which befell him as he was returning home, she retired to

the Abbey of Fontevrault, where she died April 1, 1204.

ELEATIC SCHOOL, a Greek school of philosophy, so called because Elea was the birth-place or residence of its chief representatives. Parmenides, who was born at Elea probably about the year 515, was the first completely to develop the Eleatic doctrines; but his philosophy has a very close connection with that of Xenophanes, who was born more than a century earlier.

See the separate articles XENOPHANES, PARMENIDES, and ZENO.

ELECAMPANE, a perennial composite plant, which is common in many parts of Britain, and ranges throughout central and southern Europe, and in Asia as far eastward as the Himalayas. Its stem attains a height of from three to five feet; the leaves are serrate-dentate, the lower ones stalked, the rest embracing the stem; the flowers are yellow, and two inches broad, and have many rays, each three-notched at the extremity. The root, the *radix inule* of pharmacy, is thick, branching, and mucilaginous, and has a warm bitter taste and a camphoraceous odor. For medicinal purposes it should be procured from plants not more than two or three years old. As a drug, however, the root is now seldom resorted to except in veterinary practice. In France and Switzerland it is used in the manufacture of absinthe.

ELECTIONS. The Federal laws possess original and exclusive jurisdiction of elections for president and vice-president of the United States, and for members of the House of Representatives. The privileges of the elective franchise are extended to all citizens of the United States, without regard to race, color or previous condition of servitude, the term citizen applying to male persons of the age of 21 years and upwards (not including lunatics or paupers), born or naturalized in the United States and subject to the jurisdiction thereof. The elections for State, county, municipal and township officers are regulated and managed according to laws enacted by the State legislatures, all of which contain provisions in respect to the qualifications of electors, who must be citizens of the State, and prepared to make oath of their allegiance to the United States. Citizenship is acquired in the States after a continuous residence varying from one month to two years; in some of the States foreigners are entitled to vote on declaring their intention of becoming citizens; in Rhode Island electors are required to be property-owners, and in Connecticut, Massachusetts and Missouri it is provided that voters must know how to read and write. Conviction of felony disqualifies voters, unless such disqualification is removed by the pardon of the accused, and in many of the States the legislatures are empowered to disfranchise the authors of various crimes. The payment of a poll-tax is required in a number of States.

The president and vice-president of the United States are chosen by electors selected by each State in number equal to the whole number of senators and representatives to which the State may be entitled in congress, said electors being voted for directly by the people. Members of the House of Representatives, also State, county, municipal and township officers, are elected by the people.

Quite recently the Australian system of voting has been introduced into the United States. According to that system each elector is provided with a ticket containing the names of all the candidates. From these he makes his selections, distinctly designating same by a mark opposite the name of each, and depositing his ballot, free from the interference of outsiders, who are required to remain at a considerable distance from the polling booths. It is claimed by adopting this

system existing defects in the election laws of the various States will be remedied.

ELECTRICITY. The word *Electricity* is derived from the Greek word meaning *amber*. The term was invented by Gilbert, who used it with reference to the attractions and repulsions excited by friction in certain bodies of which amber may be taken as the type. To the cause of these forces was given the name *Electricity*; and out of the study of these and kindred phenomena arose the science of electricity, of which it is the purpose of the present article to give a brief outline.

The science has been divided into three branches — *Electrostatics*, which deals with electricity at rest; *Electrokinetics*, which considers the passage of electricity from place to place; and *Electromagnetism*, which treats of the relation of electricity to magnetism. For the sake of the non-scientific reader we prefix a brief history of the science of electricity, wherein mention is made of some of the more striking electrical discoveries and of the steps by which our knowledge of the subject has advanced to its present condition.

HISTORICAL SKETCH.

The name of the philosopher who first observed that amber when rubbed possesses the property of attracting and repelling light bodies has not been handed down to our times. Thales of Miletus is said to have described this remarkable property, and both Theophrastus (321 B.C.) and Pliny (70 A.D.) mention the power of amber to attract straws and dry leaves. The same authors speak of the *lapis lycuarius*, which is supposed to be a mineral called *tourmaline*, as possessing the same property. The electricity of the torpedo was also known to the ancients. Pliny informs us, that when touched by a spear it paralyzes the muscles and arrests the feet however swift; and Aristotle adds that it possesses the power of benumbing men, as well as the fishes which serve for its prey. The influence of electricity on the human body, and the electricity of the human body itself, were also known in ancient times. Anthero, a freedman of Tiberius, was cured of the gout by the shocks of the torpedo; and Wollmer, the king of the Goths, was able to emit sparks from his own body. Eustathius, who records this fact, also states that a certain philosopher, while dressing and undressing, emitted occasionally sudden crackling sparks, while at other times flames blazed from him without burning his clothes. Such are the scanty gleanings of electrical knowledge which we derive from the ancient philosophy; and though several writers of the Middle Ages have made occasional references to these facts, and even attempted to speculate upon them, yet they added nothing to the science, and left an open field for the researches of modern philosophers.

Doctor Gilbert of Colchester may be considered as the founder of the science, as he appears to have been the first philosopher who carefully repeated the observations of the ancients, and applied to them the principles of philosophical investigation. In order to determine if other bodies possessed the same property as amber, he balanced a light metal needle on a pivot, and observed whether or not it was affected by causing the excited or rubbed body to approach to it. In this way he discovered that the following bodies possess the property of attracting light substances:—amber, agates or jet, diamond, sapphire, carbuncle, rock-crystal, opal, amethyst, vincentina or Bristol stone, beryl, glass, paste for false gems, glass of antimony, slags, belemnites, sulphur, gum-mastic, sealing-wax of lac, hard resin, arsenic, rock salt, mica, and alum. These various bodies attracted, with different degrees of force, not only straws and light filaments, but likewise metals, stones, earths, wood, leaves,

smoke, and all solid and fluid bodies. Among the substances which are not excited by friction Gilbert enumerated emerald, agate, carnelian, pearls, jasper, calc-dony, alabaster, porphyry, coral, marble, Lydian stone, flints, hematites, smyris (emery or corundum), bones, ivory, hard woods, such as cedar, ebony, juniper, and cypress, metals, and natural magnets. Gilbert also discovered that the state of the atmosphere affects the production of electricity; dryness with north or east wind being a favorable condition, while moisture with south wind is unfavorable.

Robert Boyle added many new facts to the science of electricity, and he has given a full account of them in his *Experiments on the Origin of Electricity*. By means of a suspended needle, he discovered that amber retained its attractive virtue after the friction which excited it had ceased; and, though smoothness of surface had been regarded as advantageous for excitation, yet he found a diamond which, in its rough state, exceeded all the polished ones and all the electrics which he had tried, having been able to move a needle three minutes after he had ceased to rub it. He found, also, that heat and tension (or the cleaning or wiping of any body) increased its susceptibility of excitation; and that, if the attracted body were fixed, and the attracting body movable, their mutual approach would still take place. To Gilbert's list of "electrics" Boyle added the resinous cake, which remained, after evaporating one-fourth part of good oil of turpentine, the dry mass which remains after distilling a mixture of petroleum and strong spirit of niter, glass of lead, caput mortuum of amber, white sapphire, white amethyst, diaphanous ore of lead, carnelian, and a green stone supposed to be a sapphire.

To these discoveries of Boyle his contemporary Otto von Guericke added the highly important one of *electric light*. Having cast a globe of sulphur in a glass sphere, and broken off the glass, he mounted the sulphur ball upon a revolving axis, and excited it by the friction of the hand. By this means he discovered that light and sound accompanied strong electrical excitation, and he compares the light to that which is exhibited by breaking lump sugar in the dark. With this powerful apparatus Guericke verified on a greater scale the results obtained by his predecessors, and obtained several new ones of very considerable importance. He found that a light body, when once attracted by an excited electric, was repelled by it, and was incapable of a second attraction until it had been touched by some other body; and that light bodies suspended within the sphere of influence of an excited electric possessed the same properties as if they had been excited.

To Sir Isaac Newton the science of electricity owes some important observations. He used in his electrical experiments a globe of glass rubbed by the hand instead of the sulphur globe of Von Guericke. It would appear that Newton was the first to use *glass* in this way. We owe also to Sir Isaac a beautiful experiment on the excitation of electricity which has since become very popular. Having fixed a round disc of glass in a short brass cylinder, he placed small pieces of thin paper within the cylinder and upon a table, so that the lower surface of the glass was one-eighth of an inch distant from the table. He then rubbed the upper surface of the glass, and he observed the pieces of paper "leap from one part of the glass to the other, and twirl about in the air." This experiment, after a previous unsuccessful trial, was repeated by the Royal Society in 1676.

Francis Hawksbee, one of the most active experimental philosophers of his age, added many new facts to the science. In 1705 he communicated to the Royal Society several curious experiments on what he called

"the mercurial phosphorus." He showed that light could be produced by passing common air through mercury placed in a well-exhausted receiver. The air rushing through the mercury, blew it up against the sides of the glass that held it, "appearing all around like a body of fire, consisting of abundance of glowing globules." The phenomenon continued till the receiver was half full of air. These phenomena had been observed in the Torricellian vacuum before Hawksbee's time, and various explanations suggested. He suspected that they were due to electricity, and remarked their resemblance to lightning. Like Newton, he used a revolving glass globe rubbed by the hand to generate electricity.

One of the most ardent experimentalists of his time was Stephen Gray. In his first paper, published in 1720, he showed that electricity could be excited by the friction of feathers, hair, silk, linen, woolen, paper, leather, wood, parchment, and gold-beaters' skin. Several of these bodies exhibited light in the dark, especially after they had been warmed; but all of them attracted light bodies, and sometimes at the distance of eight or ten inches. An epoch was made in the history of electricity by the discovery of Gray, in 1729, that certain bodies had, while others had not, the power of conveying electricity from one body to another, *i. e.*, in modern phrase, *conducting* it. Gray experimented with a glass tube, into the ends of which were fastened two corks; into one of these he fastened a fir rod, and to the end of the rod an ivory ball. On rubbing the glass he found that the ball attracted the light bodies as vigorously as the glass itself. He made a variety of experiments with rods of different length, and with a packthread, by which he suspended his ball from the balcony of an upper story of his house, all with the same result. He then attempted to carry the electricity horizontally on a packthread which he suspended with hempen strings; but the experiment failed.

Desaguliers made many experiments confirming Gray's conclusions, and found that bodies that have the property of being electrically excitable by friction, or *electrics per se*, have not the power of *conduction*; whereas *conductors* are not *electrics per se*. These terms, introduced by him, were useful in bringing into concise and scientific language the discoveries of Gray.

While Gray was pursuing his career of discovery in England, M. Dufay, of the Academy of Sciences, and superintendent of the royal botanic gardens, was actively employed in the same researches. He found that all bodies, whether solid or fluid, could be electrified by an excited tube, by setting them on a glass stand slightly warmed, or only dried; and that those bodies which are in themselves least electrical received the greatest degree of electricity from the approach of the glass tube. He repeated the experiments of Gray, confirming his results, and found that electricity was transmitted more easily along packthread when it was wet, and that it might be supported upon glass tubes in place of silk lines. In this way he conveyed it along a string 1,256 feet long. He suspended by silken strings and electrified a child as Gray had done; and, having suspended himself in a similar manner, he discovered that an electrical spark, accompanied with a crackling noise, took place when any other person touched him, and he has described the prickling sensation like the burning from a spark of fire, which is at the same time felt either through the clothes or on the skin. The great discovery of Dufay, however, was that of two different kinds of electricity. He fully recognized the importance of this fundamental fact, and gave the name of *vitreous* electricity to that which is produced by exciting glass, rock-crystal, precious stones, hair of animals, wool, and many other bodies; and the name of *resinous* to that which is produced by exciting resinous bodies, such as amber, copal, gum-lac, silk,

paper, thread, and a number of other substances. The characteristic of those two electricities was, that a body with vitreous electricity attracted all bodies with resinous electricity, and repelled all bodies with vitreous electricity; while a body with resinous electricity attracted all bodies with vitreous electricity, and repelled all bodies with resinous electricity.

The discoveries which we have now recounted began to rouse the activity of the German and Dutch philosophers. To the electrical machine used by Newton and Hawksbee, Professor Boze, of Wittenberg, added the *prime* conductor, which at first consisted of an iron or tin tube supported by a man standing upon cakes of rosin; but it was afterward suspended by silken strings. Professor Winkler of Leipsic, substituted a *cushion* in place of the hand for exciting the revolving globe; and Professor Gordon of Erfurt, a Scotch Benedictine monk, first used a glass cylinder, eight inches long and four broad, which he caused to revolve by means of a bow and string. By these means electrical sparks of great size and intensity were produced, and by their aid various combustible substances, both fluid and solid, were inflamed. In 1744, M. Ludolph of Berlin, succeeded in firing, by the electrical spark, the ethereal spirit of Frobenius. Winkler did the same by a spark from his finger; and he succeeded in inflaming French brandy and other weaker spirits by a jet of electrified water. Dr. Miles inflamed phosphorus by the electric spark; and oil, pitch, and sealing-wax, when strongly heated, were set on fire by similar means.

These striking effects were all produced by the electricity obtained immediately from an excited electric; but a great step was now made in the science by the discovery of a method of accumulating and preserving electricity in large quantities. The author of this great invention is not distinctly known; but there is reason to believe that a monk of the name of Kleist, a person of the name of Cuneus, and Professor Muschenbroeck of Leyden, had each the merit of an independent inventor. The invention by which this accumulation was effected was called the *Leyden Jar* or *Phial*, because it was principally in Leyden that it was either invented or tried. Having observed that excited electrics soon lost their electricity in the open air, and that their loss was accelerated when the atmosphere was charged with moisture or other conducting materials, Muschenbroeck conceived that the electricity of bodies might be retained by surrounding them with bodies which did not conduct it. In putting this idea to the test of experiment, he electrified some water in a glass bottle, and a communication having been made between the water and the prime conductor, the assistant, who was holding the bottle, on trying to disengage the communicating wire, received a sudden shock in his arms and breast, and thus established the efficacy of the Leyden jar.

Sir William Watson made some important experiments at this period of our history. He succeeded in firing gunpowder by the electric spark; and by mixing the gunpowder with a little camphor he discharged a musket by the same power. He also fired hydrogen by the electric spark; and he kindled both spirits of wine and hydrogen by means of a drop of cold water, and even with ice. In the German experiments the fluid or solid to be inflamed was set on fire by an electrified body; but Sir William Watson placed the fluid in the hands of an electrified person, and set it on fire by causing a person not electrified to touch it with his finger. Sir William Watson first observed the flash of light which attends the discharge of the Leyden phial, and it is to him that we owe the present improved form of the Leyden phial, in which it is coated both without and within with tinfoil. Dr. Bevis indeed had suggested

the outside coating, and at Smeaton's recommendation, he coated a pane of glass on both sides, and within an inch of the edge, with tinfoil, but still the idea of coating the jar doubly belongs to Sir William Watson.

The theory of positive and negative electricity which was afterward elaborated by Franklin, was distinctly announced by Sir W. Watson. He lays it down as a law that in electrical operations there is an influx of "electrical fluid" to the globe and the conductor, and also an efflux of the same matter from them. In the case of two insulated persons, the one in contact with the rubber and the other with the conductor, he observed that either of them would communicate a much stronger spark to the other than to any bystander. The electricity of the one, he says, became more rare than it is naturally, and that of the other more dense, so that the density of the electricity in the two insulated persons differed more than that between either of them and a bystander.

A high place in the history of electricity must be allotted to the name of Dr. Benjamin Franklin of Philadelphia. His researches did much to extend our theoretical and practical knowledge of electricity, and the clearness and vigor of his style made his writings popular, and spread the study of the subject.

One of the first labors of the American philosopher was to present, in a more distinct form, the theory of positive and negative electricity, which Sir W. Watson had been the first to suggest. He showed that electricity is not created by friction, but merely collected from its state of diffusion through other matter by which it is attracted. He asserted that the glass globe, when rubbed, attracted the electrical fire, and took it from the rubber, the same globe being disposed, when the friction ceases, to give out its electricity to any body which has less. In the case of the charged Leyden jar, the inner coating of tinfoil had received more than its ordinary quantity of electricity, and was therefore electrified *positively* or *plus*, while the outer coating of tinfoil having had its ordinary quantity of electricity diminished, was electrified *negatively* or *minus*. Hence the cause of the shock and spark when the jar is discharged, or when the superabundant plus electricity of the inside is transferred by a conducting body to the defective or minus electricity of the outside. This theory of the Leyden phial Franklin established in the clearest manner, by showing that the outside and the inside coating possessed opposite electricities, and that, in charging it, exactly as much electricity is added on one side as is subtracted from the other. The abundant discharge of electricity by points was observed by Franklin in his earliest experiments and also the power of points to conduct it copiously from an electrified body. Hence he was furnished with a simple method of collecting electricity from other bodies; and he was thus enabled to perform those remarkable experiments which we shall now proceed to explain. Hawksbee, Wall, and Nollet had successively suggested the similarity between lightning and the electric spark, and between the artificial snap and the natural thunder. Previous to the year 1750 Franklin drew up a statement, in which he showed that all the general phenomena and effects which were produced by electricity had their counterpart in lightning. After waiting some time for the erection of a spire at Philadelphia, by means of which he thought to bring down the electricity of a thunder-storm, he conceived the idea of sending up a kite among the clouds themselves. With this view he made a small cross of two small light strips of cedar, the arms being sufficiently long to reach to the four corners of a large thin silk handkerchief when extended. The corners of the handkerchief were

tied to the extremities of the cross, and when the body of the kite was thus formed, a tail, loop and string were added to it. The body was made of silk to enable it to bear the violence and wet of a thunder-storm. A very sharp-pointed wire was fixed at the top of the upright stick of the cross, so as to rise a foot or more above the wood. A silk ribbon was tied to the end of the twine next the hand, and a key suspended at the junction of the twine and silk. In company with his son, Franklin raised the kite like a common one, in the first thunder-storm, which happened in the month of June, 1752. To keep the silk ribbon dry, he stood within a door, taking care the twine did not touch the frame of the door; and when the thunder-clouds came over the kite he watched the state of the string. A cloud passed without any electrical indications, and he began to despair of success. He saw, however, the loose filaments of the twine standing out every way, and he found them to be attracted by the approach of his finger. The suspended key gave a spark on the application of his knuckle, and when the string had become wet with the rain, the electricity became abundant; a Leyden jar was charged at the key, and by the electric fire thus obtained spirits were inflamed, and all the other electrical experiments performed which had been formerly made by excited electrics. In subsequent trials with another apparatus, he found that the clouds were sometimes positively and sometimes negatively electrified, and so demonstrated the perfect identity of lightning and electricity. Having thus succeeded in drawing the electric fire from the clouds, Franklin conceived the idea of protecting buildings from lightning by erecting on their highest parts pointed iron wire or conductors communicating with the ground. The electricity of a hovering or a passing cloud would thus be carried off slowly and silently; and if the cloud was highly charged, the lightning would strike in preference the elevated conductors.

About the same time Franklin was making his kite experiment in America, D'Alibard and others in France had erected a long iron rod at Marli, and obtained results agreeing with those of Franklin.

One of the most diligent laborers in the field of electrical science was an Englishman, John Canton. Before his time it had been assumed as indisputable that the same kind of electricity was invariably produced by the friction of the same electric—that glass, for example, yielded always *vitreous*, and amber always *resinous* electricity. Having roughened a glass tube by grinding its surface with emery and sheet lead, he found that it possessed vitreous or positive electricity when excited with oiled silk, but resinous electricity when excited with new flannel. He found, in short, that vitreous or resinous electricity might, in certain cases, be developed at will in the same tube, by altering the surfaces of the tube and the exciting rubber. Removing the polish from one-half of the tube, he excited the different electricities with the same rubber at a single stroke, and, curiously enough, the rubber was found to move much more easily over the rough than over the polished half. Canton likewise discovered that glass, amber, sealing-wax, and calcareous spar were all electrified positively when taken out of mercury; and hence he was led to the important practical discovery that an amalgam of mercury and tin was most efficacious in exciting glass when applied to the surface of rubber. Canton discovered, and to a certain extent explained by the then prevalent theory of "electrical atmospheres," the fundamental fact of *electrification by induction*. He also found that the air in a room could be electrified positively or negatively, and might remain thus electrified for a considerable time.

Beccaria, a celebrated Italian physicist, kept up the spirit of electrical discovery in Italy. He showed that water is a very imperfect conductor of electricity, that its conducting power is proportional to its quantity, and that a small quantity of water opposes a powerful resistance to the passage of electricity. He succeeded in making the electric spark visible in water, by discharging shocks through wires that nearly met in tubes filled with water. In this experiment the tubes, though sometimes eight or ten lines thick, were burst in pieces. Beccaria likewise demonstrated that air adjacent to an electrified body gradually acquired the same electricity, that the electricity of the body is diminished by that of the air, and that the air parts with its electricity very slowly. He considered that there was a mutual repulsion between the particles of the electric fluid and those of air, and that in the passage of the former through the latter a temporary vacuum was formed. Beccaria's experiments on atmospheric electricity are of the greatest interest to the meteorologist.

The science of electricity owes several practical as well as theoretical observations to Robert Symmer (about 1759). In pulling off his stockings in the evening, he had often remarked that they not only gave a crackling noise, but even emitted sparks in the dark. The electricity was most powerful when a silk and a worsted stocking had been worn on the same leg, and it was best exhibited by putting the hand between the leg and the stockings, and pulling them off together. The one stocking then being drawn out of the other, they appeared more or less inflated, and exhibited the attractions and repulsions of electrified bodies. Two white silk stockings, or two black ones, when put on the same leg and taken off, gave no electrical indications. When a black and white stocking were put on the same leg, and after ten minutes taken off, they were so much inflated when pulled asunder, that each showed the entire shape of the leg, and at the distance of a foot and a half they rushed to meet each other.

Symmer likewise found that a Leyden jar could be charged by the stockings either positively or negatively, according as the wire from the neck of the jar was presented to the black or the white stocking. When the electricity of the white stocking was thrown into the jar, and then the electricity of the black one, or *vice versa*, the jar was not electrified at all. With the electricity of two stockings he charged the jar to such a degree that the shock from it reached both his elbows; and by means of the electricity of four silk stockings he kindled spirits of wine in a teaspoon which he held in his hand, and the shock was at the same time felt from the elbows to the breast. Symmer has the merit of having first maintained the theory of two distinct fluids, not independent of each other, as Dufay supposed them to be, but co-existent, and, by counteracting each other, producing all the phenomena of electricity. He conceived that when a body is said to be positively electrified, it is not simply that it is possessed of a larger share of electric matter than in a natural state, nor, when it is said to be negatively electrified, of a less; but that, in the former case, it is possessed of a larger portion of one kind of electricity, and in the latter, of a larger portion of the other; while a body, in its natural state, remains unelectrified, because there is an equal amount of the two everywhere within it.

The pyro-electricity of minerals, or the faculty possessed by some minerals of becoming electric by heat, and of exhibiting negative and positive poles, now began to attract the notice of philosophers. There is reason to believe that the *lyncurium* of the ancients, which, according to Theophrastus, attracted light bodies, was the *tourmaline*, a Ceylon mineral, in which the Dutch

had early recognized the same attractive property, whence it got the name of *Aschentrikker*, or attractor of ashes. In 1717, M. Lemery exhibited to the Academy of Sciences a stone from Ceylon which attracted light bodies; and Linnæus, in mentioning the experiments of Lemery, gives the stone the name of *Lapis Electricus*. The Duke de Noya was led, in 1758, to purchase some of the stones called *tourmaline* in Holland, and, assisted by Daubenton and Adanson, he made a series of experiments with them, a description of which was published. The subject, however, had engaged the attention of Æpinus, a celebrated German philosopher, who published an account of them in 1756.

Among the cultivators of electricity Henry Cavendish is entitled to a distinguished place. Before he had any knowledge of the theory of Æpinus, he had communicated to the Royal Society a similar theory of electrical phenomena.

The great discovery made by Galvani in 1790, that the contact of metals produced muscular contraction in the frog, and the invention of the voltaic pile, in 1800, by Volta led to the recognition of a new kind of electricity called *Galvanic* or *Voltaic Electricity*, which is now proved to be identical with frictional electricity. The chemical effects of the voltaic pile far transcend those of ordinary electricity.

Contemporaneous with Cavendish was Coulomb, one of the most eminent experimental philosophers of the last century. In order to determine the law of electrical action, he invented an instrument called a *torsion balance*, which has since his time been universally used in all delicate researches, and which is particularly applicable to the measurement of electrical and magnetical actions. Æpinus and Cavendish had considered the action of electricity as diminishing with the distance; but Coulomb proved, by a series of elaborate experiments, that it varied, like gravity, in the inverse ratio of the square of the distance. Doctor Robison had previously determined, without, however, having published his experiments, that in the mutual repulsion of two similarly electrified spheres, the law was slightly in excess of the inverse duplicate ratio of the distance, while in the attraction of oppositely electrified spheres the deviation from that ratio was in defect; and hence he concluded that the law of electrical action was similar to that of gravity. Adopting the hypothesis of two fluids, Coulomb investigated experimentally and theoretically the distribution of electricity on the surface of bodies. He determined the law of its distribution between two conducting bodies in contact; he measured the density of the electricity at different points of two spheres in contact; he ascertained the distribution of electricity among several spheres (whether equal or unequal) placed in contact in a straight line; he measured the distribution of electricity on the surface of a cylinder, and its distribution between a sphere and cylinder of different lengths but of the same diameter. His experiments on the dissipation of electricity possess also a high value. He found that the momentary dissipation was proportional to the degree of electrification at the time, and that, when the charge was moderate, its dissipation was not altered in bodies of different kinds or shapes. The temperature and pressure of the atmosphere did not produce any sensible change; but he concluded that the dissipation was nearly proportional to the cube of the quantity of moisture in the air. In examining the dissipation which takes place along imperfectly insulating substances, he found that a thread of gum-lac was the most perfect of all insulators; that it insulated ten times as well as a dry silk thread; and that a silk thread covered with fine sealing-wax insulated as powerfully as gum-lac when it had four times its length. He found also that the dissipation of elec-

tricity along insulators was chiefly owing to adhering moisture, but in some measure also to a slight conducting power.

Toward the end of the last century a series of experiments was made by Laplace, Lavoisier, and Volta, from which it appeared that electricity is developed when solid or fluid bodies pass into the gaseous state. The bodies which were to be evaporated or dissolved were placed upon an insulating stand, and made to communicate by a chain or wire with a Cavallo's electrometer, or with Volta's condenser, when it was suspected that the electricity increased gradually. When sulphuric acid, diluted with three parts of water, was poured upon iron filings, hydrogen was disengaged with a brisk effervescence; and at the end of a few minutes the condenser was so highly charged as to yield a strong spark of negative electricity. Similar results were obtained when charcoal was burnt on a chafing dish. Volta, who happened to be at Paris when these experiments were made, and who took an active part in them, subsequently observed that the electricity produced by evaporation was always negative. He found that burning charcoal gives out negative electricity; and in other kinds of combustion he obtained distinct electrical indications. In this state of the subject Saussure undertook a series of elaborate experiments on the electricity of evaporation and combustion. In his first trials he found that the electricity was sometimes positive and sometimes negative when water was evaporated from a heated crucible of iron; but he afterward found it to be always positive both in an iron and a copper crucible. In a silver and porcelain crucible the electricity was negative. The evaporation of alcohol and of ether in a silver crucible also gave negative electricity. Saussure made many fruitless trials to obtain electricity from combustion, and he likewise failed in his attempt to procure it from evaporation without ebullition. Many valuable additions were about this time made to electrical apparatus, as well as to the science itself, by Van Marum, Cavallo, Nicholson, Cuthbertson, Brooke, Bennet, Read, Morgan, Hanley, and Lane; but these cannot here be noticed in detail.

The application of analysis to electrical phenomena may be dated from the commencement of the present century. Coulomb had considered only the distribution of electricity on the surface of spheres; but Laplace undertook to investigate its distribution on the surface of ellipsoids of revolution, and he showed that the thickness of the coating of fluid at the pole was to its thickness at the equator as the polar is to the equatorial diameter. Biot had extended this investigation to all spheroids differing little from a sphere, whatever may be the irregularity of their figure. He likewise determined analytically that the losses of electricity form a geometrical progression when the two surfaces of a jar or plate of coated glass are discharged by successive contacts; and he found that the same law regulates the discharge when a series of jars or plates are placed in communication with each other. It is to Poisson, however, that we are mainly indebted for having brought the phenomena of electricity under the dominion of analysis, and placed it on the same level as the more exact sciences. Assuming the hypothesis of two fluids, he deduced theorems for determining the distribution of the electric fluid on the surface of two conducting spheres when they are either placed in contact or at any given distance. The truth of these theorems had been established by experiments performed by Coulomb long before the theorems themselves had been investigated.

Voltaic electricity had now absorbed the attention of experimental philosophers. The splendor of its phenom-

ena, as well as its association with chemical discovery, contributed to give it popularity and importance; but the discoveries of Galvani and Volta were destined, in their turn, to pass into the shade, and the intellectual enterprise of the natural philosophers of Europe was directed to new branches of electrical and magnetical science. Guided by theoretical anticipations, Professor H. C. Oersted of Copenhagen, in 1820 discovered that the electrical current of a galvanic battery, when made to pass through a platinum wire, acted upon a compass needle placed below the wire. He found that a magnetic needle placed in the neighborhood of an electric current always places itself perpendicular to the plane through the current and the center of the needle; or, more definitely, that a magnetic north pole, carried at a constant distance round the current in the direction of rotation of an ordinary cork-screw advancing in the positive direction of the current, would always tend to move in the direction in which it is being carried.

Scarcely had the news of Oersted's discovery reached France when a French philosopher, Ampère, set to work to develop the important consequences which it involved. Physicists had long been looking for the connection between magnetism and electricity, and had, perhaps, inclined to the view that electricity was somehow to be explained as a magnetic phenomenon. It was, in fact, under the influence of such ideas that Oersted was led to his discovery. Ampère showed that the explanation was to be found in an opposite direction. He discovered the ponderomotive action of one electric current on another, and by a series of well-chosen experiments he established the elementary laws of electro-dynamical action, starting from which, by a brilliant train of mathematical analysis, he not only evolved the complete explanation of all the electro-magnetic phenomena observed before him, but predicted many hitherto unknown. The results of his researches may be summarized in the statement that an electric current, in a linear circuit of any form, is equivalent in its action, whether on magnets or other circuits, to a magnetic shell bounded by the circuit, whose strength at every point is constant and proportional to the strength of the current. By his beautiful theory of molecular currents, he gave a theoretical explanation of that connection between electricity and magnetism which had been the dream of previous investigators. If we except the discovery of the laws of the induction of electric currents made about ten years later by Faraday, no advance in the science of electricity can compare for completeness and brilliancy with the work of Ampère.

In 1821 Faraday, who was destined a little later to do so much for the science of electricity, discovered electromagnetic rotation, having succeeded in causing a horizontal wire carrying a current to rotate continuously across the vertical lines of a field of magnetic force. Davy, in 1823, observed that, when two wires connected with the pole of a battery were dipped into a cup of mercury placed on the pole of a powerful magnet, the fluid metal rotated in opposite directions about the two electrodes. The rotation of a magnet about a fixed current and about its own axis was at once looked for, and observed by Faraday and others. The deflection of the voltaic arc by the magnet had been observed by Davy in 1821; and in 1840, Walker observed the rotation of the luminous discharge in a vacuum tube. For many beautiful experiments on the influence of the magnet on the strata, etc., in vacuum tubes, we are indebted to Plücker, De la Rive, Grove, Gassiot, and others who followed them.

One of the first machines in which a continuous motion was produced by means of the repulsions and attractions between electro-magnets and fixed magnets of

electro-magnets was invented by Ritchie. The artifice in such machines consists in reversing the polarity of one of the electro-magnets when the machine is near the position of equilibrium.

In 1820 Arago and Davy discovered independently the power of the electric current to magnetize iron and steel. Savary made some very curious experiments on the alternate directions of magnetization of needles placed at different distances from a wire conveying the discharge of a Leyden jar. The dependence of the intensity of magnetization on the strength of the current was investigated by Lenz and Jacobi, and Joule found that magnetization did not increase proportionately with the current, but reached a maximum. The use of a core of soft iron, magnetized by a helix surrounding it, has become universal in all kinds of electrical apparatus. Electro-magnets of great power have in this way been constructed and used in electrical researches by Brewster, Sturgeon, Henry, Faraday, and others.

The most illustrious among the successors of Ampère was Wilhelm Weber. He greatly improved the construction of the galvanometer, and invented the electro-dynamometer. To these instruments he applied the mirror scale and telescope method of reading, which had been suggested by Poggenдорff, and used by himself and Gauss in magnetic measurements about 1833. In 1846 he proceeded with his improved apparatus to test the fundamental laws of Ampère. The result of his researches was to establish the truth of Ampère's principles, as far as experiments with closed circuits could do so, with a degree of accuracy far beyond anything attainable with the simple apparatus of the original discoverer. The experiments of Weber must be looked upon as the true experimental evidence for the theory of Ampère, and as such they form one of the corner-stones of electrical science.

By his discovery of thermo-electricity in 1822, Seebeck opened up a new department. He found that when two different metals are joined in circuit there will be an electric current in the circuit if the junctions are not at the same temperature; he arranged the metals in a thermo-electric series, just as Volta and his followers had arranged them in a contact series. Cumming found that the order of the metals was not the same at different temperatures. This phenomenon has been called thermo-electric inversion. In 1834 Peltier discovered that if a current be sent round a circuit of two metals in the direction in which the thermo-electromotive force would naturally send it, then the hot junction is cooled, and the cool junction heated. This effect, which is reversible, and varies as the strength of the current, is called the Peltier effect. Sir W. Thomson made many experiments on thermo-electricity, and applied to the experimental results the laws of the dynamical theory of heat. His reasonings led him to predict a new thermo-electric phenomenon, the actual existence of which he afterwards verified by an elaborate series of very beautiful experiments.

In 1824 Arago made a remarkable discovery, which led ultimately to results of the greatest importance. He found that when a magnetic needle is suspended over a rotating copper disc, the needle tends to follow the motion of the disc. This phenomenon, which has been called the "magnetism of rotation," excited great interest; Barlow, Herschel, Seebeck, and Babbage, made elaborate researches on the subject; and Poisson attempted to give a theoretical explanation in his memoir on magnetism in motion. The true explanation was not arrived at until Faraday took up the subject a little later. We may mention here, however, the experiments of Plücker, Matteucci, and Foucault, on the damping of the motions of masses of metal between the poles of

electro-magnets. The damping of a compass needle suspended over a copper plate, observed by Seebeck, has been taken advantage of in the construction of galvanometers.

In 1831 Faraday began, with the discovery of the induction of electric currents, that brilliant series of experimental researches which has rendered his name immortal. The first experiment which he describes was made with two helices of copper wire, wound side by side on a block of wood, and insulated from each other by intervening layers of twine. One of these helices was connected with a galvanometer, and the other with a battery of 100 plates, and it was found that on making and breaking the battery circuit a slight sudden current passed through the galvanometer in opposite directions in the two cases. He also discovered that the mere approach or removal of a circuit carrying a current would induce a current in a neighboring closed circuit, and that the motion of magnets produces similar effects. To express in a concise manner his discoveries, Faraday invented his famous conception of the lines of magnetic force, or lines, the direction of which at any point of their course coincides with that of the magnetic force at that point. His discovery can be thus stated:—Whenever the number of lines of force passing through a closed circuit is altered, there is an electromotive force tending to drive a current through the circuit, whose direction is such that it would itself produce lines of force passing through the circuit in the opposite direction. Nothing in the whole history of science is more remarkable than the unerring sagacity which enabled Faraday to disentangle, by purely experimental means, the laws of such a complicated phenomenon as the induction of electric currents. The wonder is only increased when we look to his papers, and find the first dated November, 1831, and another January, 1832, in which he shows that he is in complete possession of all the general principles that are yet known on the subject. Faraday very soon was able to show that the current developed by induction had all the properties of the voltaic current, and he made an elaborate comparison of all the different kinds of electricity known—statical, dynamical or voltaic, magneto-, thermo-, and animal electricity—showing that they were identical so far as experiment could show. In 1833 Lenz made a series of important researches, which, among other results, led him to his celebrated law by means of which the direction of the induced current can be predicted from the theory of Ampère, the rule being that the direction of the induced current is always such that its electro-magnetic action tends to oppose the motion which produces it. This law leads to the same results as the principles of Faraday. The researches of Richard and Henry about this time, and of Dove a little later, are also of importance. In 1845, F. E. Neumann did for magneto-electric induction what Ampère did for electro-dynamics, by developing from the experimental laws of Lenz the mathematical theory of the subject. He discovered a function which has been called the "potential" (of one linear current on another or in itself), from which he deduced a theory of induction completely in accordance with experiment. About the same time Weber deduced the mathematical laws of induction from his elementary law of electrical action, which he applied to explain electrostatic and electro-magnetic action. In 1846 Weber, applying his improved instruments, arrived at accurate verifications of the laws of induction, which by this time had been developed mathematically by Neumann and himself. In 1849 Kirchhoff determined experimentally in a certain case the absolute value of the current induced by one circuit in another; and in the same year Edlund made a series of careful experiments on the cur-

rents of self and mutual induction, which led to the firmer establishment of the received theories. Helmholtz gave the mathematical theory of the course of induced currents in various cases, and made a series of valuable experiments in verification of his theory.

Magneto-electricity has been largely applied in the arts. One of the first machines for producing electricity by induction was made by Pixii. It consisted of a fixed horseshoe armature wound with copper wire, in front of which revolved about a vertical axis a horseshoe magnet. The machine was furnished with a commutator for delivering the alternating currents in a common direction. By means of this machine Faraday and Hachette decomposed water and collected the disengaged gases separately. Many variations of this type of machine were constructed by Ritchie, Saxton, Clark, Von Ettingshausen, Stöhrer, Dove, Wheatstone, and others. In 1857 Siemens effected a great improvement by inventing the form of armature which bears his name. The next improvement was to replace the fixed magnets by electro-magnets, the current for which was furnished by a small auxiliary machine. Wilde's machine (1867) is of this kind. Siemens, Wheatstone, and others suggested that the fixed electro-magnet should be fed by a coil placed on the armature itself, so that starting from the residual magnetism of the armature the machine goes on increasing its action up to a certain point. Ladd's machine (1867) is constructed on this principle. The most recent of these machines is that of Gramme, the peculiarity of which is that the coil of the armature is divided up into a series of coils arranged round an axis, the object being to produce a continuous instead of a fluctuating current.

In the year 1827 Dr. G. S. Ohm rendered a great service to the science of electricity by publishing his mathematical theory of the galvanic circuit. Before his time the quantitative circumstances of the electric current had been indicated in a very vague way by the use of the terms "intensity" and "quantity," to which no accurately defined meaning was attached. Ohm's service consisted in introducing and defining the accurate notions—electromotive force, current strength, and resistance. He indicated the connection of these with experiment, and stated his famous law that the electromotive force divided by the resistance is equal to the strength of the current. Great improvements in galvanometers and galvanometry have been made in our time. One of the first to use an electro-magnetic instrument for measuring or indicating currents was Schweigger, who in 1820 invented the "multiplier." Nobili used (1825) the astatic "multiplier" with two needles which is sometimes named after him. Becquerel (1837) used the electro-magnetic balance, which was employed in an improved form by Lenz and Jacobi. Pouillet invented the sine and tangent compasses (1837). The defects of the latter instrument were pointed out by Poggendorff, and remedies suggested by him as well as Wheatstone and others. Weber effected great improvements in the construction and use of galvanometers, adapted them for the measurement of transient currents, and elaborated the method of oscillations which had been much used by Fechner. In 1849 Helmholtz invented the tangent compass with two coils which bears his name. Great improvements in delicacy and promptness of action have been made by Sir William Thomson in galvanometers destined for the measurement of resistance, and for indicating the feeble currents of submarine cables.

The measurement of resistance has been carried to great perfection, chiefly owing to the labors of those who have busied themselves in perfecting the electric telegraph. Among such the highest place must be

assigned to Sir Charles Wheatstone; his *memoirs in the Philosophical Transactions* (1843) gave a great impulse to this department of our science. He invented the rheostat, which underwent several modifications, but is now superseded by the resistance box which was first used by Siemens. The earlier methods of Ohm, Wheatstone, and others for measuring resistance were defective, because they depended upon the constancy of the battery which furnished the current. These defects are completely obviated in the more modern "null methods," which may be divided into two classes—those which depend on the use of the differential galvanometer introduced by Becquerel, and those which are modifications of the Wheatstone's bridge method, invented by Christie and brought into use by Wheatstone. As examples of the latter, we may mention the methods of Thomson, and of Matthiessen and Hockin, for measuring small resistances, and Thomson's method for measuring the resistance of the galvanometer.

The "crown of cups" of Volta was the parent of a great many other arrangements for the production of voltaic electricity. These had for their end either compactness or diminution of the internal resistance by enlarging the plates; we may mention the batteries of Cruickshank (1801), Wollaston (1815), and Hare (1822). In 1830, Sturgeon introduced the capital improvement of amalgamating the zinc plates. In 1840, Smee used platinum or silver plates, instead of copper; by platinizing these he avoided, to a considerable extent, polarization by adhering hydrogen. In 1836, Daniell invented the two-fluid battery which bears his name. This battery is the best *constant* battery hitherto invented, and is, under various modifications, largely used in practical and scientific work. In the same year, Grove invented his well-known battery, which surpasses Daniell's in smallness of internal resistance and in electromotive force, although, on the other hand, it is more troublesome to manage, and is unsuited for long-continued action. Cooper, in 1840, replaced the expensive platinum plates of Grove's battery by carbon. This modification was introduced, in a practical form, into the battery of Bunsen (1842), which is much used on the Continent, and combines, to a certain extent, the advantages of Grove and Daniell. Among the more recent of one-fluid batteries may be mentioned the bichromate battery of Bunsen, and the Léclanché cell. It is impossible here even to allude to all the forms of battery that have been invented.

Following up the discoveries of Nicholson, Carlisle, Davy, and others, Faraday took up the investigation of the chemical decompositions effected by the electric current. In 1833 he announced his great law of electrochemical equivalents, which made an epoch in the history of this part of electricity. He recognized, and, for the first time, thoroughly explained the secondary actions which had hitherto masked the essential features of the phenomenon. Faraday's discovery gave a new measure of the current, and he invented an instrument called the voltameter, which was much used by those who followed out his discoveries.

The advances made in the experimental study of electrolysis reacted on the theory of the galvanic battery. It was now recognized that the cause of the inconstancy of batteries is the opposing electromotive force, due to the existence of the products of decomposition at the plates of the battery. Gautherot, in 1802, observed the polarization current from electrodes, which had been used for electrolysis. Ritter confirmed his discovery, and constructed, on the new principle, his secondary pile. Ohm also experimented on this subject. Fechner and Poggendorff suspected the existence of a transition resistance at the places where the chemical products were

evolved. But the experiments of Lenz, Beetz, and others, soon showed that a *vera causa* existed in the electromotive force of polarization amply sufficient to explain their results. The influence of the strength of the current, the size and nature of the plates, time, etc., on polarization, have been investigated by many physicists, among whom are prominent Beetz and Poggendorff. Determinations of the electromotive force of polarization have been made by Daniell, Wheatstone, Poggendorff, and Beetz, and recently by Tait and others. Among recent labors on polarization are to be mentioned those of Helmholtz and his pupils. We must not omit to notice here the gas battery of Grove, and the powerful secondary piles which have recently been constructed by Planté.

One of the greatest names in electrical sciences is that of Riess. In his classical research on the heating of wires by the discharge from a battery of Leyden jars, he did for electricity of high potential what Joule did for the voltaic current. The electro-thermometer which he used in these researches was an improvement on the older instruments of Kinnersley and Harris. Riess repeated and extended the experiments of Coulomb, and affected many improvements in the apparatus for electrostatical experiments.

The theory of static electricity has made great progress since Poisson's time. Among its successful cultivators we may mention Murphy and Plana. The latter went over much the same ground as Poisson, extending his results. It was, however, by Green, a self-taught mathematician, that the greatest advances were made in the mathematical theory of electricity. His researches have led to the elementary proposition which must constitute the legitimate foundation of every perfect mathematical structure that is to be made from the materials furnished in the experimental laws of Coulomb. Not only do they form a natural and complete explanation of the beautiful quantitative experiments which have been so interesting at all times to practical electricians, but they suggest to the mathematicians the simplest and most powerful methods of dealing with problems which, if attacked by the mere force of the old analysis, must have remained forever unsolved. One of the simplest applications of these theorems was to perfect the theory of the Leyden phial, a result which we owe to his genius. He has also shown how an infinite number of forms of conductors may be invented, so that the distribution of electricity in equilibrium on each may be expressible in finite algebraical terms—an immense stride in the science, when we consider that the distribution of electricity on a single spherical conductor, an uninfluenced ellipsoidal conductor, and two spheres mutually influencing one another, were the only cases solved by Poisson, and indeed the only cases conceived to be solvable by mathematical writers. The work of Green, which contained these fine researches, though published in 1828, had escaped the notice not only of foreign, but even of British mathematicians; and it is a singular fact in the history of science that all his general theorems were rediscovered by Sir William Thomson, Charles and Sturm, and Gauss. Sir William Thomson, however, pushed his researches much further than his fellow-laborers. He showed that the experimental results of Sir William Snow Harris, which their author had supposed to be adverse to the theory of Coulomb, were really in strict accordance with that theory in all cases where they were sufficiently simple to be submitted to calculation. He was guided in his earlier investigations by an analogy between the problems involved in steady flux of heat and the equilibrium of electricity on conductors. He showed, in 1845, how the peculiar electric polarization discovered by Faraday

in dielectrics, or solid insulators subjected to electric force, is to be taken into account in the theory of the Leyden jar, so as to supply the deficiency in Green's investigations. We also owe to Sir William Thomson new synthetical methods of great elegance and power. The theory of electric images, and the method of electric inversion founded thereon, constitute the greatest advance in the mathematical theory of electrostatics since the famous memoir of Green. These he has applied in the happiest manner to the demonstration of propositions which had hitherto required the resources of the higher analysis, and he has also found by means of them the distribution on a spherical bowl, a case of great interest in the theory of partially closed conductors, which had never been attacked or even dreamt of as solvable before. The impulse came from the famous memoir of Gauss. In conjunction with Weber, he introduced his principles into the measurement of the earth's magnetic force. To Weber belongs the credit of doing a similar service for electricity. He not only devised three different systems of such units—the electro-dynamical, the electrostatical, and the electromagnetic—but he carried out a series of measurements which practically introduced the last two systems. The fundamental research in this subject is to determine in electromagnetic measure the resistance of some wire from which, by comparison, the electromagnetic unit of resistance can be constructed. Measurements of this kind were made by Kirchhoff in 1849; more carefully in two different ways by Weber in 1851; by the committee of the British Association in 1863, etc.; by Kohlrausch in 1870, and by Lorenz in 1873.

During the last fifteen years the practical application of electricity has received an extraordinary impetus in the United States. Its chief promoter has been Thomas Alva Edison. In 1876 he erected a laboratory, Menlo Park, N. J., furnishing it with all the appliances required by his inventive genius. As early as 1882 he had patented nearly 300 of his inventions, and from that time he was known as the "young man who kept the grass from growing on the path to the United States Patent Office at Washington." Thirty-five of these inventions were on automatic and chemical telegraphy; eight on duplex and quadruplex telegraphing; thirty-eight on telegraph printing; fourteen on the Morse system; the fire alarm district electric signals, electric pens and electric lights; the latter of which he invented about 1879. Through the quadruplex system of telegraphy, which Edison sold to the Western Union Telegraph Company, this company has been able to save more than \$500,000 annually. His hearing having become affected, Edison of late years has turned his attention to the construction of the phonograph; the acrophone; carbon telephone, and microphone. Edison's electric-light system is considered as the most perfect yet invented, and has been adopted by almost all the principal cities of the European continent.

ELECTROLYSIS. A very slight acquaintance with the phenomena of conduction of electricity by different bodies shows us that conductors may be arranged in two very distinct classes. In one the passage of electricity produces no change in the chemical composition of the substance, unless indeed the electromotive force be so great that disruptive discharge occurs, or so large an amount of heat is generated that chemical effects ensue; the conductivity diminishes slowly as the temperature rises, and if the resistance of the rest of the circuit be small compared with that of the substance under consideration, an amount of heat is produced in the latter equivalent to the energy expended by the sources of electricity. To this class of conductors probably belong all solids, with the exception of hot glass, which con-

ducts with decomposition at a temperature below the fusing point. The conductivity differs enormously in the different cases; those which conduct most readily are the metals, alloys, the chemical elements generally, and some few metallic oxides and sulphides. Besides fused metals Faraday added one liquid, fused peroxide of mercury, to the list, but subsequently gave reasons for considering that it was misplaced.

Faraday, who was the first to define the laws which hold in electrochemical decomposition, introduced, for the sake of precision, a system of nomenclature which has since been generally employed. Wishing to regard the terminals corresponding, in any similar case, to the carbon and platinum in the above experiment merely as the "doors" by which the electricity enters and leaves the liquid, he denominated them *electrodes*, and, comparing the "path" of the current to those of the currents which may produce terrestrial magnetism, and hence to the course of the sun, he called the homologue of the carbon (where the current, so to speak, "rose," or entered) the *anode*, that of the platinum (where the current "set," or left) the *cathode*.

The phenomena which occurs at the electrodes when the ions there set free react upon the electrode or the surrounding fluid, so that the resulting products of electrolysis are not the ions themselves, are called *secondary actions*.

The anion and the cation are frequently called negative and positive ion respectively. Similarly the cathode and anode are termed the negative and positive electrodes; Daniell denoted them the platinode and the zincode, but these terms have fallen into disuse.

From Faraday's time attempts have continually been made to classify strictly, according to their chemical composition or constitution, the liquids capable of electrolytic conduction, but hitherto without very much success.

Iron, like nickel, may be deposited from its double salts, and excellent results have been obtained by Klein, of St. Petersburg, with the double sulphate of iron and ammonium. Engraved copper-plates are much harder when faced with electro-deposited iron than when unprotected, and they consequently yield a much larger number of impressions before losing their sharpness. Plates for printing bank-notes have been treated in this way.

Not only can the electro-metallurgist deposit simple metals, such as those noticed above, but he is able likewise to deposit certain *alloys*, such as brass, bronze, and German silver. The processes by which this can be effected are not, however, very generally used.

Among the minor applications of electro-metallurgy we may mention the process of electrotyping flowers, insects, and other delicate natural objects. These are first dipped for a moment in a warm solution of nitrate of silver in alcohol, and then exposed to a reducing liquid, such as a solution of phosphorous in bisulphide of carbon; an electro deposit may then be thrown down upon this metallized surface. Daguerreotypes are sometimes improved by coating them with a very delicate film of electro-deposited gold. Again in some of the modern photographic processes for printing, copper electrolytes are taken directly or indirectly from the bichromatized gelatine. Of late years, too, a method of refining crude copper by means of electro-metallurgy has been introduced, and is now successfully carried out on a large scale. Slabs of blister-copper are plunged into a solution of sulphate of copper, and form the anodes of a battery; the copper then dissolves, and is deposited in a condition of great purity at the opposite pole, most of the impurities sinking to the bottom of the depositing vat. The process should be restricted to copper which is free from any metals likely to be deposited along with the metal under purification.

ELECTROMETER. An electrometer, according to Sir William Thomson, who is the greatest living authority on this subject, and has done more than any one else to perfect this kind of physical apparatus, is "an instrument for measuring differences of electric potential between two conductors through the effects of *electrostatic* force." A galvanometer, on the other hand, which might also be defined as an instrument for measuring difference of electric potential, utilizes the *electromagnetic* forces due to the currents produced by differences of electric potential. An instrument designed merely to *indicate*, without measuring, differences of electric potential is called an *electroscope*. It is obvious that every electrometer may be used as an *electroscope*, and it is also true that all electroscopes are electrometers more or less; but the name *electrometer* is reserved for such instruments as have a scale enabling us, either directly or by appropriate reduction, to refer differences of potential to some unit.

The modern electrician is far more concerned with measurements of electric potential than with measurements of electric quantity; and consequently all modern electrometric instruments are suited for direct measurements of the former kind. It is only indirectly that such instruments measure electric quantity. With the older electricians it was otherwise; and some of the earliest electrometers were designed for the direct measurement of quantity.

ELEMI. The resin thus termed in modern pharmacy is obtained by incising the trunk of a species of *Canarium* found in the Philippine Islands. It is a soft, more or less translucent, adhesive substance, of granular consistency and fennel-like smell, and colorous when pure, but sometimes gray or blackish from the presence of carbonaceous and other impurities. When exposed to the air it becomes yellowish in tint and harder. It consists mainly of essential oil, and of an amorphous and a crystalline resin, the former easily soluble in cold, and the latter only in hot alcohol. Elemi is used chiefly in the manufacture of spirit and turpentine varnishes, which it enables to dry without cracking.

ELEPHANT, a family of pachydermatous mammals belonging to the order Proboscidea, containing only a single existing genus and two species—the sole surviving representatives of the entire order. The elephants are characterized by great massiveness of body, constituting them the largest of living terrestrial mammals, by peculiarities in their dentition, and by the possession of a lengthened proboscis or trunk. The latter organ is a huge prolongation of the nose and upper lip, measuring usually from six to eight feet in length, and almost wholly composed of a mass of muscles, numbering, according to Cuvier, nearly 40,000, and curiously interlaced, so as to produce the greatest diversity of motion. Its extremity contains the two openings of the nostrils by which the elephant breathes when swimming, as it sometimes does, with only the tip of its trunk above the surface, and through which it can fill the channels of its trunk with water, the flexibility of that organ enabling it to pour the liquid into its mouth or to squirt it over the surface of its body. By a peculiar valvular arrangement the water is prevented from penetrating into the bony nostrils. The extremity of the trunk is produced on the upper surface into a finger-like process, and ends beneath in a thick tubercle which acts the part of thumb to the prolongation above, while the whole is exquisitely endowed with the sense of touch and so forms an organ of prehension comparable in many respects to the human hand. With it the elephant collects its food and drink, discovers the snares that are often set in its path, strikes its antagonist to the ground, and gives vent to its rage in a shrill trumpet-like

sound, hence the French name of *trompe* for the proboscis, corrupted in our language into *trunk*. Without it the animal is helpless, being unable even to feed itself; and, as if conscious of the vital importance of this organ, the elephant is exceedingly cautious in using it, preferring when in combat with the tiger to fight with its trunk carried aloft, out of reach of its antagonist's claws. When the trunk is injured the elephant becomes furious with rage and pain, and can no longer be controlled by its rider.

The teeth of the elephant consist of two incisors, or tusks, as they are called, in the upper jaw, and six molars on each side of either jaw. The permanent tusks are preceded by small milk teeth, which, however, give place to their successors before the end of the second year. The tusks, proceeding from a permanent pulp, continue to grow during the elephant's lifetime, and sometimes attain enormous size, examples having been known to weigh from 150 to upward of 200 lb. each. They consist almost entirely of ivory—a remarkably fine and elastic form of dentine—and are hollow for a considerable part of their length. They are also deeply imbedded in the skull; thus a tusk, about eight feet long and twenty-two inches in girth, was found by Sir Samuel Baker to be imbedded to a depth of thirty-one inches. The tusks are invariably best developed in the male sex, and are regarded by Darwin as sexual weapons. Their almost vertical position, however, and the inability of the elephant to raise its head above the shoulder, render their use as offensive weapons somewhat difficult; nevertheless they are certainly employed as such in fighting with the tiger, the mode of using them depending, says Darwin, "on their direction and curvature"—thus the elephant has been known to toss a tiger to a distance of thirty feet with its tusks, when these were turned upward and outward, while it seeks to pin its foe to the ground when these organs have the usual downward direction. The tusks are largest in the African species, which feeds principally on the foliage and the succulent roots of trees, and in this species they are often used as levers in uprooting mimosa trees, whose crown of foliage is beyond the reach of the upturned trunk. In Ceylon, on the other hand, where the elephant lives chiefly on grass and herbage, tusks are generally absent in both sexes. The bullets occasionally found imbedded in the solid ivory have evidently been shot into the upper part of the tusk, and, getting lodged in the pulp cavity, have been carried down by the growth of successive layers of ivory into the solid part of the tooth. The molar teeth consist of a series of transverse plates, composed of dentine, and coated with a layer of enamel, the whole bound together by the substance known as *crusta petrosa*, or cement. Each of these materials, possessing a different degree of hardness, wears away at a different rate from the others, and the uneven surface necessary for the proper trituration of the food is thus produced. Although the elephant may be said to have altogether six molars on each side of either jaw, at no time can more than one and a portion of a second be seen. These molars are not deciduous in the ordinary sense, but they grow from behind forward, and as the anterior part of the front molar gets worn away by degrees, its successor is gradually cutting its way through the gum, from which, however, it does not wholly emerge until the tooth in front has almost disappeared. This progression of the molar teeth continues throughout the greater part of the elephant's life, so that it may be said to be always teething. Six of such molars, each composed of a greater number of plates than its predecessor, are said to suffice it for life. The massiveness of the skull, and

its height in front, to which the elephant owes something of its sagacious aspect, is due not to the great size of the brain—which is relatively small—but to the enormous development of the bones of the cranium, rendered necessary in order to give attachment to the powerful muscles of the head and trunk. The presence of large air cells, however, in the cranial bones, renders the skull light in proportion to its enormous bulk. The eyes in the elephant are small, and its range of vision, owing to the shortness and slight flexibility of its neck, is somewhat circumscribed; this, however, is of secondary importance to an animal living generally in dense forests, where the prospect is necessarily limited, and in the elephant is compensated for by exceeding keenness in the senses of hearing and smell. Its stomach resembles that of the camel in having a chamber which can be cut off from the proper digestive cavity for the storing of water; this is capable of holding ten gallons. The contents of this chamber it is able to convey into its trunk, should it wish to indulge its body in the luxury of a shower bath. The elephant is an unwieldy creature, weighing fully three tons, and supported on colossal limbs, which from their straightness and apparent want of flexibility—an effect produced by the greater nearness of the knee and elbow to the ground than in most animals—were for centuries supposed either to be jointless, or to have such joints as could not be used.

In lying down it does not place the hind legs beneath it, as is generally the case, but extends them backward after the manner of a person kneeling. By this method the elephant can raise its huge weight with little perceptible effort. The feet are furnished with five toes, completely enveloped in a tegumentary cushion, and with four or five nails on each of the front feet, and three or four on the hind ones, according to the species. The skin of the elephant is thick and soft, and of a dark brown color. With the exception of a few hairs on certain parts of its body, it is naked, although individuals found in the elevated districts of Northern India are said to be more hairy than those inhabiting warmer regions, while the young everywhere, according to Tennent, are at first covered with a woolly fleece, especially about the head and shoulders, approximating in this respect to the mammoth which inhabited the Palaearctic region during Pleistocene times. From such facts Darwin regards it as probable that existing elephants have lost their hairy covering through exposure to tropical heat. The elephant continues to grow for upward of thirty years, and to live for more than 100, there being well-authenticated cases of elephants that lived over 130 years in captivity. The female is capable of breeding after fifteen years, and produces a single young one, rarely two, at a birth, the period of gestation extending over nearly twenty-one months. The young elephant sucks with its mouth, and not, as was formerly supposed, with its trunk.

Elephants are polygamous, associating together in considerable herds, under the guidance of a single leader, whom they implicitly follow, and whose safety when menaced, they are eager to secure. These herds often do great damage to rice and other grain fields in cultivated districts, trampling under foot what they cannot eat. A slight fence is, however, generally sufficient to prevent their inroads, the elephant regarding all such structures with the greatest suspicion, connecting them probably in some way, with snares and pitfalls. At times this usually inoffensive animal is subject to fits of temporary fury, and an elephant in "must," as this frenzied condition is termed, is regarded as the most dangerous of animals. When an elephant, from whatever cause, leaves the herd to which it belongs, it is not al-

lived to join the ranks of another, but ever after leads a solitary life. Those individuals are known as "rogues;" being soured in temper by exclusion from the society of their kind, they become exceedingly ferocious, attacking without provocation whatever crosses their path.

There are two existing species of elephants—the African and the Asiatic. The African elephant differs in so many important particulars from the Asiatic form as to have been placed by many naturalists, and apparently with sufficient reason, in a separate genus. The enamel on the crown of its molar teeth is arranged across the surface in lozenge-shaped figures, instead of the nearly parallel transverse ridges of the other species. Its ears are enormously large, completely covering the shoulder when thrown back; they have been known to measure three and one-half feet in length and two and one-half feet in width. Its forehead also is convex, and its back concave, while in the other the forehead is almost flat, and the back convex. The African elephant ranges over the whole of Africa south of the Sahara, with the exception of the Cape, where it formerly abounded, but from which it has been driven by man. In height it somewhat exceeds the Asiatic species, although never standing more than eleven feet high at the shoulders. Its tusks are also heavier, and occur in both sexes, although in the female they are comparatively small, a male tusk usually weighing about fifty pounds, while that of the female rarely exceeds ten pounds. "The tusks of the African elephant," says Baker, "are seldom alike. As a man uses his right hand in preference to his left, so the elephant works with a particular tusk which is termed by the traders *el-hadām* (the servant); this is naturally more worn than the other, and is usually about ten pounds lighter." They roam among the long grass on the open plains, in the neighborhood of water, of which both species are excessively fond, feeding on the leaves and roots of trees, and using their tusks to overthrow such as are too strong to be pulled down by their powerful trunks. The African elephant was in ancient times domesticated by the Carthaginians, who employed it in their wars with Rome. It was this species which crossed the Alps with Hannibal, and which the Romans, after the conquest of Carthage, made use of in war, in the amphitheater and in military pageants. No African race has succeeded in reclaiming this highly intelligent and naturally docile animal—a fact often quoted in proof of the general inferiority of the negro race. Although common in Europe during the ascendancy of the Roman Empire, for centuries after it was almost unknown; and it was only in 1865 that the Zoological Society of London obtained a pair for their gardens. These are still living.

The Asiatic elephant inhabits the wooded parts of the Oriental region, from India and Ceylon eastward to the frontiers of China, and to Sumatra and Borneo. It chiefly abounds in the jungle, and probably on this account is less active and fierce than the African form. It is not, however, partial, as was at one time supposed, to low grounds and sultry heat, abounding in India and Ceylon, principally among the hilly and even mountainous districts, where the cold is often considerable. It is exceedingly sure-footed, and shows remarkable sagacity in its choice of a route over mountain districts. It feeds largely on grass, and, according to Tennent, the stems of plantain, stalks of sugar-cane, and the feathery tops of bamboo are irresistible luxuries, and fruits of every description are eaten voraciously. The tusks grow to a considerable size in the male, but are wanting in the female; while in the Ceylon elephant, which by Schlegel, Tennent, and others is considered as forming, with the Sumatran elephant, a distinct species (*Elephas sumatranus*), tusks are also absent in the

female, and only exceptionally present in the male. The latter, however, generally has a pair of upper incisors, known as "tusches," about a foot long, and one or two inches in diameter. The domestication of the Asiatic elephant dates from time immemorial, the earliest records in which it is mentioned showing that it was then chiefly employed in war. Elephants thus figured in the armies of the kings of India, when these monarchs sought to repel the invasions of Alexander the Great and of Tamerlane; but, however formidable-looking, they could not withstand the impetuous dash of well-armed and well-disciplined troops. The sabers of the invaders, aimed at their trunks, rendered the elephants totally unmanageable, and in the confusion that ensued, they generally did more harm to their own side than to the enemy. Great wooden towers, capable it is said of accommodating thirty-two soldiers, were usually fastened to the back of the war elephant, and under cover of these the archers aimed their shafts. Since the introduction of fire-arms, the elephant has become still less serviceable as an "arm of war," and is now only employed in dragging heavy artillery, and in the transport of baggage.

Elephants have been known to breed in captivity, and were thus bred, in ancient Rome, but such an event in India or Ceylon is of the rarest occurrence, although in Ava, probably owing to the fact that the females are allowed to roam in the woods in a semi-wild state, such births are common. Domesticated individuals, in India and Ceylon, have thus been all reclaimed from the wild state, and the gaps caused by death can only be filled by fresh captures. Single wild males are often caught through the agency of tame females acting as decoys. When it is sought to capture whole herds, the Hindus and Singalese construct, in the heart of the forest, a vast inclosure known as a *corral*, formed of the trunks and branches of trees, with an opening on one side, into which the herd is driven.

White elephants are merely albinos. They are extremely rare, and great store is set upon them among the independent kingdoms of Further India—the chief white elephant at the court of Siam ranking next to the queen, and taking precedence of the heir apparent! Although not an object of worship in those countries, the white elephant is considered a necessary adjunct to royalty, the want of it being regarded as ominous; and in the sixteenth century a protracted war was waged between Siam, Pegu, and Aracan, in the course of which five kings were killed, for the possession of a particular white elephant.

Although now containing only two living forms, the family of elephants was in past geological periods much richer in species—fossil remains of no fewer than fourteen species, and a still larger number belonging to the allied genus *Mastodon* having been found in the Tertiary formations, to which their remains are confined. The earliest elephants occur in the Miocene deposits of Northern India. In the Pliocene period they make their appearance in Europe, the most noteworthy species of that time being the *Elephas antiquus*, a southern form, which, surviving the rigors of the Glacial period, continued on into Pleistocene times. During the latter period elephants first appear in America, such forms as the Mammoth ranging over the northern regions of both hemispheres. The Mammoth is undoubtedly the most interesting of all the extinct elephants, owing partly to its having co-existed with man, as is proved by the numerous flint implements and other human utensils found along with its remains, and also to the perfect state of preservation in which these have been found. At the beginning of the present century, a Siberian hunter discovered an entire *Mam-*

moth frozen in a block of ice, and another has since been found—both so perfectly preserved that microscopic sections of some of the tissues were able to be made. These specimens showed that this huge creature, unlike existing elephants, was thickly clad in a covering of long dark hair, mixed at the roots with shorter hair of a woolly texture, that it possessed a mane, and that it had tusks of enormous length curved upward to fully three-fourths of a circle. Its remains are found abundantly in England, and throughout the greater part of Northern Europe and Asia. They are specially abundant in Siberia, where the tusks are so plentiful and so well preserved as to form an important article of trade, supplying, it is said, almost the whole of the ivory used in Russia. In Malta the remains of two pigmy elephants—the one four-and-a-half feet high at the shoulder, and the other only three feet—have been discovered. The mastodons differed from the true elephants chiefly in their dentition, having a greater number of molars, and having these crowned with prominent tubercles arranged in pairs; they had also tusks in both jaws, those in the lower, however, never attaining great length, and often falling out during the lifetime of the mastodon.

ELEPHANTA ISLE, called by the natives Gharripur, a small island between Bombay and the mainland, is situated about seven miles from Bombay. It is nearly five miles in circumference, and the few inhabitants it contains are employed in the cultivation of rice, and in rearing sheep and poultry for the Bombay market.

ELEPHANTIASIS, a term applied to two distinct diseases, one of which is characterized by a peculiar overgrowth of the skin and subjacent textures. This condition appears to arise from repeated attacks of inflammation of the skin and concurrent obstruction of the veins and lymphatic vessels of the part. It may attack any portion of the body, but most commonly occurs in one of the legs, which becomes so enlarged and disfigured as to resemble the form of the limb of an elephant. It is prevalent in the Barbadoes Islands, whence the name Barbadoes leg is derived. The thickening is due to excessive increase in the connective tissue, which results from the inflammatory process, and which, by pressure on the muscles of the limb, causes them to undergo atrophy or degeneration. In the earlier stages of this disease great relief, or even a cure, may be effected by the persistent employment of wet bandages, applied tightly to the limb from the toes upward, as recommended by Hebra. The other is a cutaneous disease, and is most likely a leprosy affection. The skin is rendered rough and like an elephant's rhind. The disease is considered by medical authorities constitutional and incurable.

ELEUSINIA, a festival with mysteries in honor of the goddess Demeter and her daughter Persephone, so named, it was supposed, from the celebration of the most ancient of these festivals at Eleusis. The institutional legend connects the festival at Eleusis directly with the mythical incidents arising out of the rape of Persephone, known preëminently as Kore or the Maiden. Mourning bitterly for the loss of her child, who has been borne away by Hades or Aidoneus to the regions beneath the earth, the goddess Demeter wanders over sea and land in a vain search, until she comes to Eleusis. Here seated on a stone, and absorbed in her grief, she is accosted by the daughters of the Eleusinian king Celeus, and by them brought into his house, where she finds a home and becomes the nurse of his only son, Demophoon. To make the child immortal she plunges him each night into a bath of fire; but before the work is done, the process is seen by his mother, Metanira. Her terror excites the wrath of the mysterious stranger, who,

throwing off her garment of humiliation, exhibits herself in all her majesty, and, rebuking the folly which has marred the fortunes of Demophoon, promises to prescribe the rites to be celebrated in the temple which is to be built to her honor on the hill above the fountain. In this temple she takes up her abode; but the grief from which she had been roused for a while again settles down upon her; and the earth, sympathizing with the mourning mother, refuses to yield her fruits until Zeus sends Hermes, his messenger, to the unseen land, and the maiden is restored to her mother at Eleusis, a name which means simply the trysting-place.

In later times, when Eleusis had lost its political independence, a temple of the goddess at Athens, called the Eleusinion, became to some extent the rival of the shrine at Eleusis; but the dignity of the ancient sanctuary was still marked by the solemn procession yearly made to it from Athens, during the greater of the two Eleusinian festivals. To this feast it would seem that at first Athenians only were admitted, the origin of the lesser festival being ascribed to a request made by Hercules to be initiated before his descent into Hades. Strangers being, it was said, excluded from the mysteries, the lesser Eleusinia were instituted to extend the benefit to all Greeks who might wish to share it. The great feast, celebrated yearly during the months of September and October, lasted nine days.

How far in the Eleusinian mysteries the ritual was strictly Greek, or even strictly Aryan, is a question of greater difficulty, and perhaps of greater interest. It may be enough here to say that the Iacchus or Dionysus who, in the Eleusinian legend, is the son of Demeter, is preëminently a Theban god, and that to Thebes especially is traced the introduction from Asia of that orgiastic worship in which the frenzy of the worshipers denoted the irresistible impulses by which the decay and reproduction of the natural world are governed.

ELEUSIS, a small city of Attica about fourteen miles northwest of Athens, occupying the eastern part of a rocky ridge close to the shore opposite the Island of Salamis. Like most of the other cities of Greece, its origin is ascribed to various fabulous characters, and, among these, to Ogyges, a fact which at least proves it to be of the highest antiquity. In the earlier period of its history it seems to have been an independent rival of Athens, and it was afterward reckoned one of the twelve Old Attic cities. A considerable portion of its small territory was occupied by the plains of Thria, noticeable for their fertility, though the hopes of the husbandmen were not unfrequently disappointed by the blight of the south wind.

ELGIN, or **MORAYSHIRE**, a maritime county in the north of Scotland. The distance from the sea to its furthest inland point is thirty-three miles. It contains, since the alterations made by the Inverness and Elgin County Boundaries Act, 1870, about 487 square miles, or 312,375 acres, nearly one-third of which may be considered as under cultivation. As thus limited, the county comprises but the eastern portion of the ancient province of Moray, which extended from the Spey on the east to the River Beauln on the west, and from the sea to the Grampians southward. Population, about 45,000.

In all parts of the county the oldest names of places are Celtic, showing clearly what race had at one time been in possession of the soil. At the dawn of authentic history we find Macbeth, Ri or Mormaer of Moray, in rebellion against "the gracious Duncan." The sequel is well known. A century or so later there was a great influx of strangers into Moray—Normans, Saxons, and Flemings—who got large grants of land from David I. and his immediate successors.

ELGIN, a royal and parliamentary burgh of Scotland, and the county town of the above county, which, from its having been once the see of a bishop, and occasionally the residence of the kings of Scotland, claims for itself the designation of a city. It occupies a sheltered situation on the banks of the small River Lossie, about five miles from where the latter enters the Moray Firth. Population, 8,000.

ELGIN, a railroad and telegraph town of Kane county, Ill. Population, 10,000.

ELGIN, THOMAS BRUCE, SEVENTH EARL OF, was born July 20, 1766, and succeeded his brother in the Scotch earldoms of Elgin and Kincardine when only seven years of age. He was educated at Harrow and Westminster, and, after studying for some time at the University of St. Andrews, he proceeded to the Continent, where he prosecuted the study of international law at Paris, and of military science in Germany. When his education was completed he entered the army, in which he rose to the rank of general. His chief attention was, however, devoted to diplomacy. In 1792 he was appointed envoy at Brussels, and in 1795 envoy extraordinary at Berlin; and from 1799 to 1802 he was envoy extraordinary at the Porte. He died at Paris, November 14, 1841.

ELGIN AND KINCARDINE, JAMES BRUCE, EARL OF, born in 1811, was the eighth earl of Elgin and twelfth earl of Kincardine in the peerage of Scotland, and the first Baron Elgin in that of the United Kingdom. The eldest son of Thomas, the seventh earl, by his second marriage, he succeeded to the peerage in 1841. As a young man he came into contact with Doctor Chalmers, who induced him to speak in public on church extension, and it was to Chalmers' sermon on the "Expulsive Power of a New Affection" that he turned on his death-bed, repeating many passages from it in the last hour. He sat in the House of Commons for Southampton long enough to attach him to the constitutional principles now described as Liberal-Conservative, though he never identified himself with a party.

Lord Elgin began his official career in 1842, at the age of thirty, as governor of Jamaica. He succeeded the great Indian civilian, Lord Metcalf, who had left the colony in such a state of quietude and prosperity as was possible soon after emancipation. During an administration of four years he succeeded in winning the respect of all classes. He improved the condition of the negroes and conciliated the planters by working through them. In 1846 Lord Grey appointed him governor-general of Canada. Son-in-law of the popular Earl of Durham, he was well received by the colonists, and he set himself deliberately to carry out the policy which makes Lord Durham's name remembered there with gratitude to this day. Alike from his political experience in England and his life in Jamaica Lord Elgin had learned that safety lay in acting as the moderator of all parties, while applying fearlessly the constitutional principles of the mother country to each difficulty as it arose. In this his frank and genial manners also aided him powerfully. His assent to the local measure for indemnifying those who had suffered in the troubles of 1837 led the mob of Montreal to pelt his carriage for the rewarding of rebels for rebellion, as Mr. Gladstone described it. But long before his eight years' term of service expired he was the most popular man in Canada. His relations with the United States, his hearty support of the self-government and defense of the colony, and his settlement of the free-trade and fishery questions, moreover, led to his being raised to the British peerage.

Soon after his return to England, in 1854, Lord Palmerston offered him a seat in the Cabinet as chancel-

lor of the duchy of Lancaster, which he declined. But when, in 1856, the seizure of the *Arrow* by Commissioner Yeh plunged England into war with China, he at once accepted the appointment of special envoy with the expedition. On reaching Point de Galle he was met by a force summoned from Bombay to Calcutta by the news of the Sepoy mutiny at Meerut on May 11th. His first idea, that the somewhat meager intelligence would justify most energetic action in China, was at once changed when urgent letters from Lord Canning reached him at Singapore, the next port, on June 3d. H. M. S. *Shannon* was at once sent on to Calcutta with the troops destined for China, and Lord Elgin himself followed it, when gloomier letters from India reached him. Lord Elgin sent in his ultimatum to Commissioner Yeh at Canton on the same day, December 12th, that he learned the relief of Lucknow, and he soon after sent Yeh a prisoner to Calcutta. By July, 1858, after months of Chinese deception, he was able to leave the Gulf of Pecheli with the emperor's assent to the Treaty of Tientsin, whereby concessions were made such as all civilized peoples grant to each other, if only from self-interest.

The Chinese had resolved to try the fortune of war once more, and Lord Russell again sent out Lord Elgin as ambassador extraordinary to demand an apology for the attack, the execution of the treaty, and an indemnity for the military and naval expenditure. Sir Robert Napier (afterward Lord Napier of Magdala), and Sir Hope Grant, with the French, so effectually routed the Tartar troops and sacked the Summer Palace that by October 24, 1860, a convention was concluded, which was "entirely satisfactory to Her Majesty's Government." The treaty and convention have regulated the relations of China with the West to the present time. In the interval between the two visits to China, Lord Elgin held the office of postmaster-general in Lord Palmerston's administration, and was elected lord rector of the University of Glasgow. He had not been a month at home after the second visit when the same premier selected him to be Her Majesty's viceroy and governor-general of India.

Lord Elgin had now attained the object of his honorable ambition, after the office had been filled in most critical times by his juniors and old college companions, the Marquis of Dalhousie and Earl Canning. He succeeded a statesman who had done much to reorganize the whole administration of India, shattered as it had been by the mutiny. Long, too long in grappling with it, as he himself afterward confessed, Lord Canning had atoned for the sluggishness of his early action by the vigor of his two last years of office, and established his popularity on the firm basis of his land-tenure reforms and his foreign or feudatory policy. Lord Elgin could only develop both, and he recognized this as what he called his "humble task." But, as the first viceroy directly appointed by the Crown, and as subject to the secretary of state for India, Lord Elgin at once gave up all Lord Canning had fought for, in the coördinate independence, or rather the stimulating responsibility, of the governor-general, which had prevailed from the days of Clive and Warren Hastings. From his time to the present the old powers of the historic governor-general have been overshadowed by the party influences of the Indian secretary. This subservience was seen in a further blow at the Legislature, by which a bill could be published without leave from the Calcutta Council, and in the reversal of Lord Canning's measure for the sale of a fee-simple tenure with all its political as well as economic advantages. But, on the other hand, Lord Elgin loyally carried out the wise and equitable policy of his predecessor toward our feudatories with a firmness

and a dignity that in the case of Holkar and Oudeypore had a good effect. He did his best to check the aggression of the Dutch in Sumatra, which was contrary to treaty, and he supported Dost Mahomed in Cabul until that aged warrior entered the then neutral and disputed territory of Herat. Determined to maintain inviolate the integrity of our own northwest frontier, Lord Elgin assembled a camp of exercise at Lahore, and marched a force to the Peshawur border to punish those branches of the Yusufzai tribe who had violated the engagements of 1858. It was in the midst of this "little war," in 1863, that he died.

EL-GOLEA, a town on the southern frontiers of Algeria, in that part of the Sahara which bears the name of El-erg, at about 160 miles southwest of Wargla. In itself it is of no particular interest, but its position makes it a very important station for the caravan trade between Algeria and the countries to the South.

ELI was a priest of Jehovah at the temple of Shiloh, the sanctuary of the ark, and at the same time judge over Israel—an unusual combination of offices, which must have been won by signal services to the nation in his earlier years, though in the history preserved to us he appears in the weakness of extreme old age, unable to control the petulance and rapacity of his sons, Hophni and Phinehas, which disgraced the sanctuary and disgusted the people. While the central authority was thus weakened, the Philistines advanced against Israel, and gained a complete victory in the great battle of Ebenezer, where the ark was taken, and Hophni and Phinehas slain. On hearing the news, Eli fell from his seat and died. According to the Massoretic text, he was ninety-eight years old, and had judged Israel for forty years.

ELIAS LEVITA, a Jewish rabbi, the most distinguished Hebrew scholar of his time, was born at Neustadt, on the Aisch, in Bavaria, 1472. From the fact that he spent most of his life in Italy, some have supposed him to have been an Italian by birth. There can be no doubt, however, that he was a German, as he asserts the fact in the preface to one of his works, and his pupil, Münster, states expressly that he was born at Neustadt of Jewish parents. His father, Rabbi Ascher Levita, assumed the surname of Aschkenasi (the German), which was also used by the son. Banished as a Jew from his native country, Elias went to Italy in the beginning of the sixteenth century. He resided at first in Venice, where he earned a high reputation as a teacher of Hebrew. In 1504 he removed to Padua, where he continued his career as a teacher, and wrote a commentary on the Hebrew grammar of Rabbi Kimchi. When Padua was sacked in 1509 he lost all his property, and removed to Venice. About 1512 he took up his residence in Rome, where he enjoyed for a number of years the friendship of Cardinal Egidio, and of several other dignitaries of the church. In 1540 he went to Isny in Swabia, having been invited by Paul Fagius to join him in the superintendence of a printing-press for Hebrew books. The last two years of his life were spent in Venice, where he died in 1549.

ÉLIE DE BEAUMONT, JEAN BAPTISTE ARMAND LOUIS LÉONCE, a celebrated French geologist, was born at Canon, in Calvados, on September 25, 1798. He was educated at the Lycée Henri IV., where he took the first prize in mathematics and physics; at the École Polytechnique, where he stood first at the exit examination in 1819; and at the École des Mines, where he began to show a decided preference for the science with which his name is associated. In 1823 he was selected along with Dufrenoy by Brochant de Villiers, the professor of geology in the École des Mines, to accompany him on a scientific tour to England and Scot-

land, with the double object of inspecting the mining and metallurgical establishments of the country, and of studying the principles on which the geological map of England had been prepared, with a view to the construction of a similar map of France. He held the office of engineer-in-chief of mines in France from 1833. His growing scientific reputation secured his election to the membership of the Academy of Berlin, of the Academy of Sciences of France, and of the Royal Society of London. According to his view, all mountain ranges parallel to the same great circle of the earth are of strictly contemporaneous origin, and between the great circles a relation of symmetry exists in the form of a pentagonal réseau. After his compulsory superannuation at the École des Mines, he continued to superintend the issue of the detailed maps almost until his death, which occurred on September 21, 1874.

ELIJAH, literally *God-Jehovah*, the greatest and sternest of the Hebrew prophets, makes his appearance in the narrative of the Old Testament with an abruptness that is strikingly in keeping with his character and work. The words in which he is first introduced—"Elijah the Tishbite, of the inhabitants of Gilead"—contain all that is told of his origin, and, few as the words are, their meaning is not without ambiguity. By varying the pointing of the Hebrew word translated "of the inhabitants" in the authorized version, the passage is understood by a number of critics to indicate a Tishbeh in Gilead, not named elsewhere, as the birth-place of the prophet; but it is not certain that anything more definite is meant than that the prophet came from Gilead, the mountainous region beyond Jordan. Whether the place of his birth is definitely indicated or not, there is nothing said of his genealogy, and thus his unique position among the prophets of Israel, whose descent is almost invariably given, is signaled from the first. Some have supposed that he was by birth a heathen and not a Jew, but this is an unfounded conjecture, so inherently improbable that it does not deserve consideration. His appearance in the sacred narrative, like Melchisedek, "without father, without mother," gave rise to various rabbinical traditions, such as that he was Phinehas, the grandson of Aaron, returned to earth, or that he was an angel in human form.

Elijah occupied an altogether peculiar place in later Jewish history and tradition. Of the general belief among the Jewish people that he should return for the restoration of Israel the Scriptures contain several indications, such as the prophecy of Malachi (iv, 5-6). Even if this be applied to John the Baptist, between whom and Elijah there are many striking points of resemblance, there are several allusions in the gospels which show the currency of a belief in the return of Elias, which was not satisfied by the mission of John (Matt. xi, 14, xvi, 14; Luke ix, 8; John i, 21).

Elijah is canonized both in the Greek and in the Latin Churches, his festival being kept in both on July 20th.—the date of his ascension in the nineteenth year of Jehoshaphat, according to Cornelius a Lapide.

ELIOT, JOHN, "the Apostle of the Indians of North America," was born at Nasing, in Essex, in 1604, and was educated at Jesus College, Cambridge, where he took his bachelor's degree in 1623. He there displayed a partiality for philology which may have had some influence in stimulating the zeal he afterward displayed in acquiring the language of the native Indians. After leaving the university he was employed as an usher in a school near Chelmsford under the Rev. Thomas Hooker. While in the family of Mr. Hooker, Eliot received serious impressions, and resolved to devote himself to the work of the Christian ministry. As there was then no field for non-conformist preachers in England, he re-

solved to emigrate to America, where he arrived on November 3, 1631. After officiating for a year in the first church in Boston, he was, in November, 1632, appointed pastor of the church in Roxbury, where he continued till his death.

When Eliot began his mission work there were about twenty tribes of Indians within the bounds of the plantation of Massachusetts Bay, and for a long time he assiduously employed himself in learning their language. He obtained the assistance of a young Indian taken prisoner in the Pequot war of 1637, and who had been put to service with a Dorchester planter. With his help Eliot translated the Commandments, the Lord's Prayer, and many Scripture texts, and at length was able to preach to the Indians in their own language. This he did without the aid of an interpreter in 1646, at a place a few miles from Cambridge, afterward called Nonantum or Noonatomen, *i.e.*, "Rejoicing," where a settlement of Christian Indians was subsequently established.

The labors of Eliot, being reported in England, excited great attention, and a society, afterward incorporated, was instituted for the propagation of the gospel in New England. Among its leading members was the Hon. Robert Boyle, well known by his scientific labors, who was one of Eliot's constant correspondents. From the funds of this corporation an allowance of £50 per annum was paid to Eliot in supplement of his moderate salary of £60 as minister of Roxbury.

In 1651 a town called Natick, or "Place of Hills," was founded by the Christian Indians, mainly through the instrumentality of Eliot, for which he drew up a set of civil and economical regulations. He also, in 1653, at the charge of the corporation, published a catechism for their use. This was the first book published in the Indian language; no copy of it is known to exist. In 1660 Eliot drew upon himself some animadversion by the publication at London of a work called *The Christian Commonwealth, or the Civil Policy of the Rising Kingdom of Jesus Christ*, which was found to contain seditious principles, especially directed against the Government of England. The statements, however, made in this book were afterward retracted by the author.

About this time Eliot completed his task of translating the Bible into the Indian language. The corporation in London supplied the funds, and the New Testament in Indian was issued in 1661, shortly after the restoration of Charles II. It happened that the printing of the work was completed when the corporation was expecting a royal charter. A dedication to the king was accordingly inserted, written in a tone calculated to win his favor. It stated that the Old Testament was in the press, and it craved the "royal assistance for the perfecting thereof." The Old Testament was at length published in 1663. Copies of the New Testament were bound with it, and thus the whole Bible was completed in the Indian language. This Indian version of the Scriptures was printed at Cambridge (U. S.) by Samuel Green and Marmaduke Johnson, and was the first Bible printed in America.

In 1680 another edition of the New Testament was published; and in 1685 the second edition of the Old Testament appeared. The last was bound up with the second impression of the New Testament, and the two parts form the second edition of the whole Bible. It was dedicated "To the Hon. Robert Boyle, the Governor, and to the Company for the Propagation of the Gospel," etc., and is, like the first edition, a work of great rarity. Eliot received valuable assistance in preparing this edition from the Rev. John Cotton of Plymouth (U. S.), who had also spent much labor in obtaining a thorough knowledge of the Indian language.

A new edition of the Indian Bible was printed in 1822 at Boston by P. S. Du Ponceau and J. Pickering.

In 1671 Eliot printed in English a little volume entitled *Indian Dialogues, for their Instruction in that Great Service of Christ in Calling Home their Countrymen to the Knowledge of God and of Themselves*. This was followed in 1672, by *The Logick Primer: some Logical Notions to Initiate the Indians in the Knowledge of the Rule of Reason*, etc. These two volumes, printed at Cambridge (U. S.), are extremely rare. Of the former, the only known copy exists in a private library in New York. A copy of the *Logick Primer* is preserved in the British Museum, and another in the Bodleian.

Eliot died at Roxbury on May 20, 1690, at the age of eighty-six. He was acknowledged to have been a man whose simplicity of life and manners and evangelical sweetness of temper, had won for him all hearts, whether in the villages of the emigrants or in the smoky huts of the natives of New England.

His translation of the Bible and other works composed for the use of the Indians are written in the Mohican dialect, which was spoken by the aborigines of New England. By Eliot and others it was called the Massachusetts language. Although it is no longer read, the works printed in it are valuable for the information they furnish as to the structure and character of the unwritten dialects of barbarous nations.

ELIOT, SIR JOHN, one of the greatest among the English statesmen of the reign of Charles I., was born at his father's seat at Port Eliot, a small fishing-village on the River Tamar, in the month of April, 1592. He was only twenty-two when, in the distinguished company of Pym and Wentworth, he commenced his parliamentary career, and only twenty-seven when he obtained the appointment of vice-admiral of Devon, with large powers for the defense and control of the commerce of the county. It was not long before the characteristic energy with which he performed the duties of his office involved him in difficulties. After many attempts, in 1623 he succeeded, by a clever but dangerous maneuver, in entrapping the famous pirate Nutt, who had for years infested the southern coast, inflicting immense damage upon English commerce. The issue is noteworthy, both as the event which first opened Eliot's eyes to the corruptness of the Government, and as an example of one of the causes which produced the great Rebellion. The pirate, having gained powerful allies at court by means of bribery, was speedily permitted to recommence his career of plunder; while the vice-admiral, upon charges which could not be substantiated, was flung into the Marshalsea, and was detained there nearly four months.

A few days after his release Eliot was elected member of Parliament for Newport (February, 1624). From the first he perceived that the success of the popular cause required the entire independence of Parliament; and his earliest recorded speech was to propose that, as "misreports" were constantly being carried to the king, the deliberations of the House of Commons should be kept strictly secret. In the days of Eliot, such a measure would have carried with it advantages of the first importance; and it was only natural that, in his anxiety to make Parliament an efficient check upon the crown, he should forget how necessary was the check upon Parliament which would thus have been lost.

In the first three Parliaments in the reign of Charles I., Eliot was the foremost leader of the House of Commons. The House was, at that time, rich in great statesmen. Upon its benches sat Pym, Hampden, Selden, Coke, and many other sincere and steadfast patriots. But, though in profundness of erudition one or two, but only one or two, may have surpassed

him, neither in force of genius, in fire and power of oratory, in loftiness and ardor of sentiment, in inflexible firmness of resolution, nor in personal bravery and self-devotion, had he any superior, while in the union of these great qualities which made up his rare and noble character, he had no equal. The circumstances of his past life also conduced to fit him for his position. His official intercourse with the Duke of Buckingham, and a certain important interview between them, in which the duke had incautiously unveiled his design of governing without Parliament, should Parliament refuse submission, had given him an early and valuable opportunity of gauging the character of the favorite; and a bitter experience had acquainted him with the corruptness of the court. Undeterred by any vestige of personal fear, he dared, in plain and uncompromising language, to expose all the abuses which oppressed the country through innumerable illegal exactions of many kinds, and through the venality of the executive; and to point out how it was disgraced abroad by a foreign policy directed by the mere spleen of the favorite, and by the gross mismanagement of every campaign that had been undertaken. He dared to advise Parliament to demand an account of the expenditure of the supplies which it had voted, and to refuse further supplies till such an account had been rendered. Nay, he dared even to brave the king's deadliest hatred by naming, repeatedly, with direct and sternest invective, the great Duke of Buckingham, the all-powerful favorite, as chiefly responsible for the misgovernment of the country. He did not escape unpunished. In 1626, for drawing a bold parallel between Buckingham and Sejanus, he was sent to the Tower; but the House of Commons refused to proceed with any business till he should be released, and, on his release, passed a vote clearing him from fault. In the same year he was confined for a time in the Gatehouse, whence, careless of mere personal considerations, he ventured to petition the king against forced loans. He was also accused of having, in his capacity of vice-admiral, defrauded the Duke of Buckingham, who, among his innumerable offices, held that of admiral of Devon, and was supplanted by a creature of the duke's. And, finally, a sentence of outlawry was passed upon him.

But the very fact that he was thus specially singled out for vengeance by the king only increased the confidence reposed in him by the people. In 1628 despite the most strenuous opposition of the court, he was chosen member for his own county of Cornwall; and he resumed his work with undiminished zeal and courage. He at once advised the House to adopt, and firmly to maintain, the only policy which could be effective, namely, to vote no further supplies till they obtained redress of the grievances of which they complained. He joined with Coke, Selden, Littleton, Wentworth, and others in framing the Petition of Right, and when the first evasive answer was given to that petition, and men scarce knew what to do for wondering at the king's madness and audacity, he fearlessly reviewed the events of the whole reign, and proposed a remonstrance to the king, naming the Duke of Buckingham as the cause of the kingdom's wretchedness. And, on the last day of that famous Parliament, when Holles and Valentine held the speaker in the chair by force, it was his voice which read a protest against levying tonnage and poundage and other taxes without consent of Parliament, and against the king's encouragement of Arminians and Papists (for it is characteristic both of himself and of his epoch, that, though no Puritan, he spoke as strongly against the king's illegal toleration of Papists as against any other of his illegal acts); and also a declaration that whatever minister should "bring in innovation in

religion, or seek to extend, or introduce Popery and Arminianism, or should advise illegal methods of raising money, should be considered a capital enemy to the commonwealth, nay, that whoever even yielded compliance to such illegal demands, should be held accessory to the crime." This was the last speech of that session, and Eliot's last speech of all.

A few days after, Parliament having been dissolved, he was summoned, with Selden, Holles, Valentine, and three other members, before the council. When examined he refused to answer for his conduct in Parliament anywhere except before Parliament; and he was then, with his companions, committed to "close confinement" in the Tower, books and the use of writing materials being strictly denied. This rigorous treatment was maintained for nearly three months, till Charles found it necessary to give way somewhat to the popular feeling which was expressed by libels against the bishops and the lord-treasurer, and by stern warnings addressed to himself. In May the prisoners were taken before the court of king's bench, when Eliot simply repeated the protest he had made before the council. The case was put off time after time till the long vacation came without its having been heard. Eliot was now, however, allowed to communicate with his friends, among whom his most constant and valued correspondent was Hampden, to borrow books from Sir Robert Cotton's library, and to employ the tedious hours in writing. He drew up a defense of his conduct, under the title of *An Apology for Socrates*—and wrote a little book of philosophical meditations, which he called *The Monarchy of Man*, and an account of the first Parliament of Charles I., which he describes on the title page as "a thing that concerns posterity"—and which is of no slight historical value. In February, 1632 the sentence was at last pronounced, the prisoners being all condemned to a fine; to be imprisoned during the king's pleasure; and not to be released till they had given security for their good behavior, had submitted to the king, and had acknowledged their offenses. The largest fine was imposed upon Eliot—a fine of £2,000, which, however, he never paid, as he had taken the precaution of securing his property against such an event. Twenty-seven years later this sentence was reversed by Parliament, and Eliot's brave assertion of the independence of Parliament was confirmed, never to be again questioned.

The confinement of the other prisoners was gradually made less and less strict, till they were at length allowed full liberty; but Eliot's spirit, which no weariness or suffering could conquer, disdained to submit where he held no submission to be due, and for him there was no mercy. After more than a year had passed since he first entered the Tower, and the king's hate had only increased in malignity, on December 21, 1631, the council met to devise new means to subdue his constancy and force him to submission. All admittance to him was now denied except to his sons. Moved into a room which his letters describe as dark, cold, and wretchedly uncomfortable, at length his health gave way, and the doctors prescribed fresh air and exercise. He now addressed the king, having been referred to him by the court of king's bench, to which he had first applied, in a petition, written in simple, manly language, requesting that, for his health's sake, he might be allowed a temporary release. The answer being that the petition was not sufficiently humble, he expressed himself "heartily sorry that he had displeased His Majesty," but merely repeated his request with no word of submission. To this no reply was given; and fifteen days after Sir John Eliot died in the Tower (November 27, 1632). His sons humbly begged leave to carry his body to Port Eliot, that he might

rest with his fathers, but even this poor request Charles had not magnanimity enough to grant; and, by his express command, Sir John Eliot was "buried in the church of the parish where he died."

ELIS, or ELEIA, a country of the Peloponnesus, bounded on the north by Achaia, east by Arcadia, south by Messenia, and west by the Ionian Sea. The local form of the name was Valis, or Valeia, and its meaning, in all probability, the lowland. In its physical constitution Elis is practically one with Achaia and Arcadia; its mountains are mere offshoots of the Arcadian highlands, and its principal rivers are fed by Arcadian springs.

ELIS, the chief city in the above country, was situated on the River Peneus; just where it passes from the mountainous district of Acrorea into the champaign below. According to native tradition, it was originally founded by Oxyllus, the leader of the Ætoliens, whose statue stood in the market-place. In 471 B.C. it received a great extension by the incorporation, or "synoikismos," of various small hamlets, whose inhabitants took up their abode in the city.

ELISHA, the disciple and successor of Elijah, was the son of Shaphat of Abel-meholah, which lay in the valley of the Jordan. He was called to the prophetic office in the manner already related (see ELIJAH), some time before the death of Ahab, and he survived until the reign of Joash. His official career thus appears to have extended over a period of nearly sixty years. The relation between Elijah and Elisha was of a particularly close kind, and may be compared with that between Moses and Joshua or David and Solomon. The one is the complement of the other; the resemblances, and still more the marked contrast between the character and activity of each, qualified both together for the common discharge of one great work by "diversity of operation." The difference between them is much more striking than the resemblance. Elijah is the prophet of the wilderness, rugged and austere; Elisha is the prophet of civilized life, of the city and the court, with the dress, manners, and appearance of "other grave citizens." Elijah is the messenger of vengeance—sudden, fierce, and overwhelming; Elisha is the messenger of mercy and restoration. Elijah's miracles, with few exceptions, are works of wrath and destruction; Elisha's miracles, with but one notable exception, are works of beneficence and healing. Elijah is the "prophet of fire" (Ecclesiasticus, xlviii, i), an abnormal agent working for exceptional ends; Elisha is the "holy man of God which passeth by us continually," mixing in the common life of the people, and promoting the advancement of the kingdom of God in its ordinary channels of mercy, righteousness, and peace.

The place which Elisha filled in the history of Israel during his long career as a prophet was, apart altogether from his wonder-working, one of great influence and importance. In the natural as in the supernatural sphere of his activity the most noteworthy thing is the contrast between him and his predecessor. Elijah interfered in the history of his country as the prophet of exclusiveness, Elisha as the prophet of comprehension. During the reign of Jehoram he acted at several important crises as the king's divine counselor and guide.

Elisha is canonized in the Greek Church, his festival being on June 14th.

ELIZABETH, Queen of England, one of the most fortunate and illustrious of modern sovereigns, was born in the palace of Greenwich, on September 7, 1533. She was the only surviving issue of the ill-starred union between Henry VIII. and Anne Boleyn, which extended over a space of less than three years. Anne was crowned at Westminster, June 15, 1533, and

was beheaded within the Tower of London, May 19, 1536. The girlish beauty and vivacity of Anne Boleyn, with her brief career of royal splendor and her violent death, invest her story with a portion of romantic interest; but she does not seem to have possessed any solid virtues or intellectual superiority. The name of Elizabeth cannot be added to the list of eminent persons who are said to have inherited their peculiar talents and dispositions from the side of the mother. On the contrary, she closely resembled her father in many respects—in his stout heart and haughty temper, his strong self-will and energy, and his love of courtly pomp and magnificence. Combined with these, however, there was in Elizabeth a degree of politic caution and wisdom, with no small dissimulation and artifice, which certainly does not appear in the character of "bluff King Harry." Early hardships and dangers had taught Elizabeth prudence and suspicion, as well as afforded opportunity in her forced retirement for the pursuit of learning and private accomplishments. The period of her youth was an interesting and memorable one in English history. The doctrines of the Reformation had spread from Germany to this country; and the passions and interests of Henry led him to adopt in part the new faith, or at least to abjure the grand tenet of the Papal supremacy. Anne Boleyn, by her charms and influence, facilitated this great change; and there is historical truth as well as poetical beauty in the couplet of Gray:

"That Love could teach a monarch to be wise,
And gospel light first dawn'd from Boleyn's eyes."

The Protestantism of England was henceforth linked to Elizabeth's title to the crown. She was in her fourteenth year when her father, King Henry, died. Her education had been carefully attended to, latterly under the superintendence of good Catherine Parr, the last of Henry's queens. The young princess was instructed in Greek and Latin, first by William Grindal, and afterward by Roger Ascham, who has described his pupil in glowing terms as "exempt from female weakness," and endowed with a masculine power of application, quick apprehension, and retentive memory. She spoke French and Italian with fluency, was elegant in her penmanship, whether in the Greek or Roman character, and was skillful in music, though she did not delight in it. "With respect to personal decoration," adds Ascham, "she greatly prefers a simple elegance to show and splendor." This last characteristic, if it ever existed, did not abide with Elizabeth. Her love of rich dresses, jewels, and other ornaments was excessive; and at her death she is said to have had about 2,000 costly suits of all countries in her wardrobe. Nor can it be said that even at the tender age of sixteen, when Roger Ascham drew her flattering portrait, Elizabeth was exempt from female weakness. After the death of Henry, the queen-dowager married the Lord Admiral Seymour, whose gallantries and ambition embittered her latter days. Seymour paid court to the Princess Elizabeth, and with the connivance of her governess, Mrs. Ashley, obtained frequent interviews, in which much boisterous and indelicate familiarity passed. The graver court ladies found fault with "my Lady Elizabeth's going in a night in a barge upon Thames, and for other light parts;" and the scandal proceeded so far as to become matter of examination by the council. Mrs. Ashley and Thomas Parry, cofferer of the princess's household (afterward patronized by Elizabeth), were committed for a time to the Tower, and Elizabeth underwent an examination by Sir Thomas Tyrwhit, but would confess nothing. "She hath a very good wit," said Tyrwhit, "and nothing is gotten of her but by great policy." The subsequent disgrace and death of Seymour closed this first of Elizabeth's love passages; she ap-

plied herself diligently to her studies under Ascham, and maintained that "policy" and caution which events rendered more than ever necessary.

The premature death of Edward VI. called forth a display of Elizabeth's sagacity and courage. Edward had been prevailed upon by the Duke of Northumberland to dispose of the crown by will to his cousin, Lady Jane Grey. The two sisters, Mary and Elizabeth, on whom the succession had been settled by the testamentary provisions of Henry VIII., as well as by statute, were thus excluded. Mary's friends immediately took up arms; Elizabeth was asked to resign her title in consideration of a sum of money, and certain lands which should be assigned to her; but she rejected the proposal, adding that her elder sister should be treated with first, as during Mary's lifetime she herself had no right to the throne. Elizabeth then rallied her friends and followers, and when Mary approached London, successful and triumphant, she was met by Elizabeth at the head of 1,000 horse—knights, squires, and ladies, with their attendants. Such a congratulation merited a different acknowledgment from that which Elizabeth was fated to experience. But the temper of Mary, never frank or amiable, had been soured by neglect, persecution, and ill-health; and her fanatical devotion to the ancient religion had become the absorbing and ruling passion of her mind. She was not devoid of private virtues—certainly excelling Elizabeth in sincerity and depth of feeling; but her virtues "walked a narrow round;" and whenever the Romish Church was in question, all feelings of private tenderness, and all considerations of public expediency or justice, were with Mary as flax in the fire. The five years of her reign are perhaps the most un-English epoch in our annals.

To escape from indignities and persecution at court, Elizabeth was suffered to retire, though carefully watched, to her house at Ashridge, in Buckinghamshire. Wyatt's insurrection, prompted by the rumored marriage of Mary with Philip of Spain, made her still more an object of suspicion and distrust, as the hopes of the Protestant party were on all occasions turned to Elizabeth. The young princess was taken from Ashridge and privately committed to the Tower. Her death was demanded by some of the bigoted adherents of the court, but Mary dared not and probably did not desire to proceed to this extremity; Philip, when allied to the English crown, interceded on behalf of the fair captive, and Elizabeth was removed to Woodstock, under care of a fierce Catholic, Sir Henry Bedingfield. Her extreme wariness and circumspection baffled every effort to entrap her. She conformed outwardly to the Catholic Church, opening a chapel in her house at Woodstock, and keeping a large crucifix in her chamber. This conformity was not unnaturally ascribed to dissimulation, but part was probably real. To the end of her life, Elizabeth retained a portion of the old belief. She had always a crucifix with lighted tapers before it in her private chapel; she put up prayers to the Virgin (being, she said, a virgin herself, she saw no sin in this); she disliked all preaching and controversy on the subject of the real presence; and she was zealous almost to slaying against the marriage of the clergy. She was anxious to retain as much as possible of the Catholic ceremonial and the splendid celebrations of the church festivals, which the ardent reformers would gladly have swept away, as had been done in Scotland. The Anglican Church was a compromise.

Elizabeth was in her twenty-fifth year when she ascended the throne. She had been better disciplined and trained for her high trust than most princes, yet the difficulties that surrounded the English crown at this time might well have appalled her. The nation

was struggling in a war with France, trade was much decayed, Calais had been lost, and England was distracted by religious divisions and animosities. All Catholic Europe might be expected to be arrayed against the Protestant Queen of England. Elizabeth, however, at once chose the better part for herself and the nation. Without waiting for the assembling of her first Parliament, she ordered the church service to be read in English, and the elevation of the host to be discontinued. But before this could be known abroad, she had instructed the English ambassador at Rome to notify her accession to the Pope. Paul IV., then pontiff, arrogantly replied, that England was a fief of the Holy See, that Elizabeth was illegitimate and could not inherit the crown, and that she should renounce all her pretensions and submit to his decision. If Elizabeth had ever wavered as to the course she should pursue, this papal fulmination must have fixed her determination. Twelve years afterward, a subsequent Pope, Pius V., issued a bull releasing English Catholics from their allegiance to the Queen, and formally depriving her of her title to the throne. But the thunders of the Vatican, like the threats of the Escorial, fell harmless on the English shores. The nation, under its Protestant monarch and her wise counselors, the Lord-Keeper Bacon, Cecil (afterward Lord Burghley), Walsingham, Throckmorton, Sir Ralph Sadler, and others, pursued its triumphant course while its naval strength and glory were augmented beyond all former precedent. The exploits of the gallant sea-rovers Drake, Hawkins, and Frobisher, the heroic deaths of the brave admirals Gilbert and Grenville, and the transatlantic adventures of Raleigh, are still unsurpassed in romantic interest.

Her first Parliament passed the famous Acts of Supremacy and Uniformity, which struck directly at the papal power. All clergymen and public functionaries were obliged to renounce the temporal and spiritual jurisdiction of every foreign prince and prelate; and all ministers, whether benefited or not, were prohibited from using any but the established liturgy. These statutes were carried out with considerable severity; many Catholics suffered death; but all might have saved themselves, if they had explicitly denied the right of the pope to depose the queen. The Puritans and nonconformists, on the other hand, were content to bear some portion of the burden of intolerance and oppression, from the consideration that Elizabeth was the bulwark of Protestantism. If they lost her firm hand they lost all; and the numerous plots and machinations of the Catholics against the queen's life showed how highly it was valued, and how precious it was to Protestant Europe. In the latter part of the queen's reign, her domestic and fiscal regulations were justly open to censure. The abuse of monopolies had grown to be a great evil; grants of exclusive right to deal in almost all commodities had been given to the royal favorites, who were exorbitant in their demands, and oppressed the people at pleasure. Elizabeth wisely yielded to the growing strength of the Commons, and the monopolies complained of were canceled. The monarchy, though as yet arbitrary and in some respects undefined, was still, in essential points, limited by law.

One great object of the Protestants was to secure a successor to the throne by the marriage of Elizabeth. The nearest heir was Mary Queen of Scots, a zealous Catholic, who was supported by all the Catholic states, and had ostentatiously quartered the royal arms of England with her own, thus deeply offending the proud and jealous Elizabeth. The hand of the English queen was eagerly solicited by numerous suitors—by Philip of Spain, who was ambitious of continuing his connection with England, by the Archduke Charles of Austria, by

Eric King of Sweden, the Duke of Anjou, and others. With some of these Elizabeth negotiated and coquetted for years; to Anjou she seems to have been attached; but her affections were more deeply touched, as Mr. Hallam has remarked, by her favorite Dudley, Earl of Leicester. Her early resolution, and that which ultimately prevailed over her weakness or vanity, was, that she should remain single and hold undivided power. To a deputation from the Commons on this delicate subject, she emphatically said she had resolved to live and die a virgin queen; "and for me it shall be sufficient that a marble stone declare that a queen, having reigned such a time, lived and died a virgin." She appears often to have wavered in her resolution, and, in her partiality for handsome courtiers and admirers, to have forgotten her prudence and dignity. Her partiality for Essex was undisguised—it was unhappy for both; and making Hatton chancellor because he could dance gracefully, was a bold but not unsuccessful achievement. Elizabeth's fits of rage were as violent as her fits of love. Her maids of honor sometimes felt the weight of the royal hand; and when Essex once turned his back on her, she appropriately dealt him a box on the ear. As a pendant to these *uugr*, we may add, that Elizabeth swore strongly, decided and masculine oaths.

The feminine weakness and egregious vanity of Elizabeth, in the midst of so many masculine qualities of temperament and intellect, have afforded abundant matter for garrulous chroniclers. Five years after she ascended the throne, she issued a proclamation against portrait painters and engravers, who had erred in expressing "that natural representation of her majesty's person, favor or grace," that was desired by her loving subjects, and who were ordered to desist until some "special cunning painter" might be permitted to have access to the royal presence. The works of the unskillful and common painters were, as Raleigh relates, by the queen's commandment, "knocked in pieces and cast into the fire." A long account is given by the Scottish ambassador Melville, of certain interviews he had with Elizabeth when in her most gracious and pleasant mood. She showed him "my lord's picture,"—a portrait of the unworthy favorite Dudley; she changed her dress every day, "one day the English weed, another the French, and another the Italian, and so forth," asking Melville which became her best; her hair, he says, was rather reddish than yellow, and curled naturally; she inquired whether the Queen of Scotland or herself was of highest stature, and Melville answering that Mary was tallest, "then," saith she, "she is too high, for I myself am neither too high nor too low." Melville praised Mary's accomplishments as a musician and dancer, and Elizabeth contrived, as if by accident, that he should hear her play upon the virginals: "she inquired whether my queen or she played best; in that I found myself obliged to give her the praise." In the matter of the dancing, Melville was also able to answer, that Mary did not dance "*so high and disposedly*" as Elizabeth. Determined to show all her accomplishments, Elizabeth addressed the wary ambassador in Italian, which she spoke "reasonably well," and in German, which, he says, was "not so good." These glimpses of the *woman* Elizabeth contrast strangely with the *sovereign*, who, at Tilbury camp, rode from rank to rank of her army, bareheaded, with a general's truncheon in her hand, declaring to her soldiers that she was resolved to live and die amongst them in the midst and heat of the battle; and that she thought it "foul scorn that Parma or Spain, or any prince of Europe, should dare to invade the borders of her realms."

The darkest stain on the memory of Elizabeth is her treatment of Mary, Queen of Scots. To have cut off Mary from the crown, settling it on her son, would have secured the Protestant succession, and Mary liberated would most probably have repaired to France, whence her revenue was derived, or to Spain. Thus the conspiracies for her release and her own machinations would have been averted. Her execution, though clamored for by the English nation, was an act of cruelty peculiarly revolting on the part of a female sovereign and kinswoman. And Elizabeth's affected reluctance to sign the death warrant, her prompting to secretary Davison that Sir Amias Paulet should be instigated to make away with the captive queen (which the "dainty precise fellow," as Elizabeth termed him, refused to do), and her feigned grief and indignation after the event had taken place—throwing the blame on her ministers and on the unfortunate secretary who placed the warrant before her signature—all this over-acted and disgusting hypocrisy is almost as injurious to the reputation of Elizabeth as the deed itself.

Mr. Froude has said that no trace can be found of personal animosity on the part of Elizabeth toward Mary. It is evident, however, that jealousy, if not hatred, animated the English queen toward her rival. The youth and beauty of Mary were a source of aversion; Elizabeth never forgave her for quartering the royal arms of England; and there was a certain malicious letter, written by Mary to Elizabeth when the captive queen was under the guardianship of the Earl of Shrewsbury, that must have chafed the Tudor blood in no ordinary degree. In this epistle Mary reported some alleged speeches of the Countess of Shrewsbury charging Elizabeth with licentious amours, physical defects, absurd vanity, folly, and avarice (Hume, chap. xlii). The original letter in Mary's handwriting was seen by Prince Labanoff (*circa* 1840) among the Cecil papers in Hatfield House, where, we believe, it still remains. It is such an epistle as no woman—royalty apart—would ever forget or forgive; but there is a probability that Burghley or Walsingham may have intercepted the letter, and not ventured to deliver it to their royal mistress.

To the end of her life Elizabeth affected all the airs of a coy beauty and coquette. Even her statesmen addressed her in a strain of fulsome adulation and semi-gallantry. She was the Gloriana of Spenser, the "fair vestal throned in the west" of Shakespeare, and the idol of all the lesser poets, as well as courtiers and politicians. When Raleigh was confined in the Tower, he wrote to Cecil—trusting, no doubt, that his letter would be shown to Elizabeth—that he was in the utmost depth of misery because he could no longer see the queen. "I, that was wont to behold her riding like Alexander, hunting like Diana, walking like Venus, the gentle wind blowing her fair hair about her pure cheeks like a nymph [Elizabeth was then in her fifty-ninth year]; sometime singing like an angel, sometime playing like Orpheus," etc. Elizabeth continued her gorgeous finery and rigorous state ceremonial, and was waited upon by applauding crowds whenever she went abroad. We have a graphic picture of her in her sixty-fifth year by a German, Paul Hentzner, who saw the queen on a Sunday as she proceeded to chapel. She appeared stately and majestic; her face oblong, fair but wrinkled; her eyes small, yet black and pleasant; her nose a little hooked, her lips narrow, her teeth black, her hands slender, and her fingers long (there was a special beauty in her delicate white hands, and in her audiences she took care not to hide them). She had pearls with rich drops in her ears, wore false red hair, had a small crown on her head, her bosom uncovered, her dress white silk, bordered with pearls of the size of beans, a collar of gold and jewels; and, then

arrayed, Elizabeth passed along smiling graciously on the spectators, who fell down on their knees as she approached; while a marchioness bore up her train, a bevy of ladies followed her dressed in white, and she was guarded on each side by fifty gentlemen pensioners, carrying gilt battle-axes.

A few years afterward we see the eclipse of all this splendor and servility. Toward the end of March, 1603, Elizabeth was seized with her mortal illness. She became restless and melancholy, refused medicine, and sat for days and nights on cushions, silent, her finger pressed on her mouth. When asked by Cecil who should succeed her on the throne, she characteristically answered, "My seat has been the seat of kings; I will have no *rascal* to succeed me." She afterward, when speechless, joined her hands together over her head, "in the manner of a crown," to signify, in answer to another interrogatory from Cecil, that she wished the king of Scots to be her successor. She expired March 24, 1603. And thus calmly passed away the last of the Tudors, the lion-hearted Elizabeth. She was in the seventieth year of her age and forty-fifth of her reign—a period of brilliant prosperity and advancement, during which England had put forth her brightest genius, valor, and enterprise, and attained to the highest distinction and glory among the states of Europe. The "golden days of good queen Bess" were long remembered in contrast to those of her pusillanimous successor, and this traditional splendor, in spite of historical research and juster views of government, has scarcely yet "faded into the common light of day."

ELIZABETH, Sr., of Hungary, daughter of Andrew II., King of Hungary, was born in Presburg in 1207. At four years of age she was betrothed to Louis IV., Landgrave of Thuringia, and conducted to the Thuringian court to be educated under the direction of his parents. From her earliest years she is said to have evinced an aversion to worldly pleasures, and, making the early Christians her chief model, to have devoted her whole time to religion and to works of charity. She was married at the age of fourteen, and acquired such influence over her husband that he adopted her doctrines and zealously assisted her in all her charitable endeavors. On the death of Louis, in 1227, Elizabeth was deprived of the regency by his brother Henry Raspe, on the pretext that she was wasting the estates by her alms; and with her three infant children she was driven from her home without being allowed to carry with her even the barest necessities of life. She lived for some time in great hardship, but ultimately her uncle, the bishop of Bamberg, offered her an asylum in a house adjoining his palace. Through the intercession of some of the principal barons, the regency was again offered her, and her son Herman was declared heir to the throne; but renouncing all power, and making use of her wealth only for charitable purposes, she preferred to live in seclusion at Marburg under the direction of her confessor, Conrad. There she spent the remainder of her days in penances of unusual severity, and in ministrations to the sick, especially those afflicted with the most loathsome diseases. She died at Marburg, November 19, 1231, and four years afterward was canonized by Gregory IX. on account of the frequent miracles reported to have been performed at her tomb.

ELIZABETH PETROVNA, Empress of Russia, daughter of Peter the Great and of Catherine I., was born September 5, 1709. In consequence of a law of her father, by which the sovereign had the power to choose his successor, she had no legal claim to the throne. The Empress Anna Ivanova died in 1740. She had appointed Ivan, son of her niece Anne, Duchess of Brunswick, a child only a few months old, to the throne,

with Biron, her favorite, regent. Elizabeth was quite contented with this arrangement. She declared that love was the supreme good, and that she had no desire for the cares and honors of a crown. But the prestige of her father's name, and the favor in which she stood with the Russian people, rendered her an object of jealousy to the regent and to the mother of the presumptive heir; and on her refusing a proposal of marriage with the Duke of Brunswick, brother-in-law of Anne, it was hinted to her that she should take the veil. She might not even then have listened to the suggestions of those who counseled a conspiracy, had she not been persuaded by Lestocq, her physician and favorite, that the suspicions of the government were so much aroused that to go back or to delay was no longer compatible with safety. Yielding to those representations, she resolved to make the venture, and on December 6, 1741, entered the barracks of the Preobrajensky guards and endeavored to induce them to swear allegiance to her. Notwithstanding her powerful appeal and the promise of high rewards, all hesitated with the exception of a single company—old soldiers of Peter the Great; but placing herself at the head of this small band, she entered the imperial palace and made prisoners of the regent, and of Anne and her son. She possessed already the affections of the people, and at once her authority was firmly established. Her administration was successful both at home and abroad. Although she was ruled by worthless favorites, who followed each other in rapid succession, her reign was very popular with the people, who surnamed her the Clement. She was indolent and sensual, but she possessed considerable abilities, and an energetic will when it was roused to exertion. She had some taste for literature and the fine arts, and founded the University of Moscow, and the Academy for the Fine Arts of St. Petersburg. In 1743, she brought the war with Sweden to a close by an advantageous treaty. She successfully assisted Maria Theresa against Frederick the Great, and in this way contributed to the peace of Aix-la-Chapelle, in 1748. After this, irritated, it is said, by a reported witty remark of Frederick, she took part in the 'Seven Years' War, and by successive victories reduced that monarch to great straits, from which he was only delivered by her death (January 5, 1762).

ELIZABETH, originally **ELIZABETHTOWN**, a city of the United States, capital of Union County, New Jersey, is situated eleven miles west-southwest of New York, on the Elizabeth River, near its junction with Staten Sound. It is a well-built and flourishing place. Besides a great establishment for the manufacture of the "Singer" sewing machine, there are breweries, foundries, potteries, and factories for edge-tools, saws, stoves, carriages, oil-cloth, etc. The port, which is open to vessels of considerable size, is one of the greatest coal-shipping depots in the United States, forming, as it does, the outlet for the Pennsylvanian fields. The town dates from 1665; it was the capital of New Jersey from February, 1755, to September, 1790, and obtained its city charter in 1865. Population, in 1889, about 33,000.

ELIZABETHGRAD, or **YELIZAVETGRAD**, a fortified town and military depot of South Russia, in the government of Kherson, is situated on the left bank of the Ingul, 153 miles north by west of Kherson.

ELIZABETHPOL, **YELIZAVETPOL**, or **GANSHA**, the chief town of a government in the province of Tiflis, in Russian Transcaucasia, is situated 1,449 feet above the sea-level, on an affluent of the Kur, ninety miles south-east of Tiflis.

ELK. See **DEER**.

ELLENBOROUGH, **EDWARD LAW, BARON**, chief-

justice of the court of king's bench, was born on November 16, 1750, at Great Salkeid, in Cumberland. After spending five years as a "special pleader under the bar," he was called to the bar in 1780. He chose the northern circuit, and in a very short time obtained a lucrative practice and a high reputation. In 1787 he was appointed principal counsel for Warren Hastings in the celebrated impeachment trial before the House of Lords, and the ability with which he conducted the defense was universally recognized. He had commenced his political career as a Whig, but, like many others, he saw in the French Revolution a reason for changing sides and he became a supporter of Pitt. He was harsh and overbearing to counsel, and in the political trials which were so frequent in his time showed an unmistakable bias against the accused. In the trial of Home, for blasphemy in 1817, Ellenborough directed the jury to find a verdict of guilty, and their acquittal of the prisoner is generally said to have hastened his death. He resigned his judicial office in November, 1818, and died on December 13, following.

ELLENBOROUGH, EDWARD LAW, EARL OF, the eldest son of Baron Ellenborough, noticed above, was born in 1790, was educated at Eton and St. John's College, Cambridge, and represented the subsequently disfranchised borough of St. Michael's in the House of Commons, until the death of his father in 1818 gave him a seat in the House of Lords. Sir Robert Peel appointed him governor-general with the queen's approval. He discharged the duties of the high position from February 28, 1842, to June 15, 1844, when the directors exercised their power of recalling him. He finally left Calcutta on August 1, 1844. His Indian administration of two and a half years, or half the usual term of service, was from first to last a subject of hostile criticism. His own letters sent monthly to the queen, and his correspondence with the Duke of Wellington, published in 1874, after his death, enable us to form an intelligent and impartial judgment of his meteor-like career. The events in dispute are his policy toward Afghanistan and the army and captives there, his conquest of Sind, and his campaign in Gwalior. He was fortunate in having as his private secretary, Captain (afterward Sir Henry) Durand, the accomplished engineer, officer and statesman, who died in 1871 when lieutenant-governor of the Punjab. Although he was absorbed in military and foreign politics, his administration was fertile in peaceful reforms, due to his colleague, Mr. Wilberforce Bird, who purged the police, put down state lotteries, and prohibited slavery, with Ellenborough's hearty support.

He died at his seat, Southam House, near Cheltenham, on December 22, 1871, at the age of eighty-one. The barony reverted to his nephew, the earldom becoming extinct. One of the most able, and certainly the most erratic, of all the governors-general, he survived six of his successors. In many features of his character he resembled his distinguished father.

ELLESMERE, FRANCIS EGERTON, FIRST EARL OF, born in London on January 1, 1800, was the second son of the first Duke of Sutherland. He was known by his patronymic as Lord Francis Leveson Gower, until 1833, when he assumed the surname of Egerton alone, having succeeded on the death of his father to the estates which the latter inherited from the Duke of Bridgewater. In 1839 he visited the Mediterranean and the Holy Land. His impressions of travel were recorded in his very agreeably written *Mediterranean Sketches* (1843), and in the notes to a poem entitled *The Pilgrimage*. He published several other works in prose and verse, all displaying a fine literary taste. His contributions to the *Quarterly Review* were published in a collected form after his death. His literary repu-

tation secured for him the position of rector of Aberdeen University in 1841. Lord Ellesmere was a munificent and yet discriminating patron of artists. Lord Ellesmere served as president of the Royal Geographical Society, and as president of the Royal Asiatic Society. In 1853 he visited the United States as British commissioner to the Great Exhibition at New York. In 1855 he was made a K. G. He was one of the trustees of the National Gallery at the time of his death, which occurred on February 18, 1857.

ELLICHIPUR, a district of British India, in the commissionership of East Berar, within the Hyderabad Assigned Districts.

ELLIOTSON, DR. JOHN, was born at Southwark, London, toward the end of the last century. He studied medicine first at Edinburgh, and then at Cambridge, in both which places he took the degree of M. D., and subsequently at the Borough Hospitals, in London. In 1837 he espoused the cause of mesmerism, and thus eventually brought himself into collision with the medical committee of the hospital, a circumstance which led him, on December 28, 1838, to resign the offices held by him there and at the university. In spite of the discouragements he had received, he continued the practice of mesmerism, and became in 1849, physician of a mesmeric infirmary. He died July 29, 1868. Doctor Elliotson was the discoverer of the communicability of glanders to the human subject, the treatment of neuralgia by acupuncture, and the fact that pain does not necessarily continue till death in cases of perforation or rupture of the stomach; he was the first to prove the value of quinine as an antiperiodic, of strong solution of silver nitrate in erysipelas, of prussic acid in gastrodynia and vomiting, and as a means of preparing the stomach for other medicines, of cupric sulphate in chronic diarrhoea, and of creosote, potassium iodide, and ferrous carbonate in other diseases; and he was moreover one of the earliest among British physicians to advocate the employment of the stethoscope.

ELLIOTT, EBENEZER, the corn-law rhymier, was born at Masborough, Yorkshire, on March 17, 1781. His father, Ebenezer, a man of vigorous intellect but bigoted in his theological tendencies, exercised a powerful sway over the mind of the future poet. At school Ebenezer was considered a dull pupil; and his childhood was solitary. The fruits of his thoughts on political subjects were seen in the *Ranter* and the *Corn-Law Rhymes*, of which a third edition appeared in 1831. His other important poems are, *The Village Patriarch* (1831), *The Splendid Village*, and the *Corn-Law Hymns*. Many gems are to be found among his *Miscellaneous Poems*. He carried on business as an iron-founder in Sheffield for twenty years (1821-41), in which he was so successful that he retired to an estate at Great Houghton, near Barnsley, in 1841, where he resided till his death, which took place on December 1, 1849. Elliott lives in history by his determined opposition to the "bread-tax," as he called the corn laws, the sad results of which he expressed in such terribly vivid lines as the following:—

"I bought his coffin with my bed,
My gown bought earth and prayer;
I pawn'd my mother's ring for bread,
I pawn'd my father's chair."

ELLIS, GEORGE, a miscellaneous writer distinguished for his services in promoting a knowledge of early English literature, was born in London in 1745.

Ellis was an intimate friend of Sir Walter Scott, who styled him "the first converser I ever saw," and dedicated to him the fifth canto of *Marmion*. He died April 15, 1815.

ELLIS, SIR HENRY, a distinguished antiquarian

writer, for many years principal librarian to the British Museum, was born in London of a Yorkshire family in 1777. He died January 15, 1866. Sir Henry Ellis's life was one of very considerable literary activity. His first work of importance was the preparation of a new edition of Brand's *Popular Antiquities*, which appeared in 1813. In 1816 he was selected by the Commissioners of Public Records to write the introduction to *Domesday Book*, a task which he discharged with much learning, though several of his views have not stood the test of later criticism.

ELLIS, WILLIAM, one of the most devoted and successful of modern missionaries, was born in London, August 29, 1794. Having been ordained, he sailed for the South Sea Islands in January, 1816, and reached his destination after a voyage of thirteen months' duration. He remained in Polynesia, occupying various stations in succession, until 1824, when he was compelled to return home on account of the state of his wife's health. Though the period of his residence in the island was thus comparatively short, his labors were very fruitful, contributing perhaps as much as those of any other missionary to bring about the extraordinary improvement in the religious, moral and social condition of the Southern Archipelago that has taken place during the present century. He was not only unwearied in his efforts to promote the immediate spiritual object of his mission, but he introduced many secondary aids to the improvement of the condition of the people. His gardening experience enabled him successfully to acclimatize many species of tropical fruits and plants, which now form an important source of wealth to the islanders; and he had the distinction of setting up and working the first printing press in the South Seas. Ellis and his wife availed themselves for their journey home of an American vessel, which landed them free of all charge at New Bedford, Massachusetts, in the spring of 1825. They remained for some months in the United States, where they were exceedingly well received, and Ellis excited much interest in the mission with which he was connected by attending numerous public meetings held in support of its claims. He died June 25, 1872.

ELLOR, or ELLUR, a town of British India, in the Godavari district, in the presidency of Madras, situated on the bank of the Tammalar River.

ELLORA, a town of India, in the native state of Hyderabad, near the city of Dowletabad. Ellora was ceded in 1818 by Holkar to the British, who transferred it to the Nizâm in 1822 by the treaty of Hyderabad.

ELLSWORTH, a city of the United States, capital of Hancock County, Maine, is situated twenty-five miles east of Bangor, on the Union River, about four miles from its mouth. As the port of entry for the district of Frenchman's Bay, and the seat of an extensive trade in timber, it enjoys great commercial prosperity; and, besides a considerable variety of wooden wares, it manufactures iron, brass, sailcloth, carriages, and sledges. Population in 1880, about 6,000.

ELLWOOD, THOMAS, an English author, chiefly celebrated from his connection with Milton, was born at Crowell, in Oxfordshire, in 1639. The principal facts of his life are related in a very interesting autobiography, which contains much information as to his intercourse with the poet.

ELM, the popular name for the trees and shrubs constituting the genus *Ulmus*. The Common Elm, a doubtful native of England, is found throughout a great part of Europe, in North Africa, and in Asia Minor, whence it ranges as far east as Japan. It grows on almost all soils, but thrives best on a rich loam, in open, low-lying, moderately moist situations, attaining a height of 60-100,

and in some few cases as much as 130 or 150 feet. The branches are numerous and spreading, and often pendulous at the extremities; the bark is rugged; the leaves are alternate, ovate, rough, doubly serrate, and, as in other species of *Ulmus*, unequal at the base; the flowers are small, hermaphrodite, numerous, in purplish brown tufts, and each with a fringed basal bract, have a four-toothed campanulate calyx, four stamens, and two styles, and appear before the leaves in March and April; and the seed-vessels are green, membranaceous, one-seeded, and deeply cleft.

The Wych Elm, or Wych Hazel, *U. montana*, is indigenous to Britain, where it usually attains a height of about fifty feet, but among tall-growing trees may reach 120 feet. It has drooping branches, and a smoother and thinner bark, larger and more tapering leaves, and a far less deeply notched seed-vessel than *U. campestris*. The wood, though more porous than in that species, is a tough and hard material when properly seasoned, and, being very flexible when steamed, is well adapted for boat-building. Branches of the wych elm were formerly manufactured into bows, and if forked were employed as divining-rods. The Weeping Elm, the most ornamental member of the genus, is regarded as a variety of this species. The Dutch or Sand Elm is a tree very similar to the wych elm, but produces inferior timber. The Cork-Barked Elm, *U. suberosa*, is distinguished chiefly by the thick deeply-fissured bark with which its branches are covered. The American or White Elm, *U. americana*, is a hardy and very handsome species, of which the old tree of Boston Common (U.S.) was a representative. This tree is supposed to have been in existence before the settlement of Boston, and at the time of its destruction by the storm of February 15, 1876, measured twenty-two feet in circumference.

ELMACIN, ELMACINUS, or ELMAKYN, GEORGE, author of a history of the Saracens, and known in the East by the name of Ibn-Amid, was a Christian of Egypt, where he was born in the year 1223. He occupied the place of ketib or secretary at the court of the sultans of Egypt, an office which was usually filled by Christians. Elmacin died at Damascus in 1273. His history was published, in Arabic and Latin, at Leyden in 1625.

ELMES, HARVEY LONSDALE, architect of St. George's Hall, Liverpool, was the son of James Elmes (see next article), and was born at Chichester, in 1814. After serving some time in his father's office, and under a surveyor at Bedford, and an architect at Bath, he became partner with his father, in 1835, and in the following year he was the successful competitor among eighty-six for a design for St. George's Hall, Liverpool. The foundation stone of this building was laid on June 28, 1838, but Elmes being successful in a competition for the Assize Courts in the same city, it was finally decided to include the hall and courts in a single building. In accordance with this idea, Elmes prepared a fresh design, and the work of erection commenced in 1841. He superintended its progress till 1847, when, from failing health, he was compelled to delegate his duties to C. R. Cockerell, R.A., and leave for Jamaica, where he died of consumption, on November 26, 1847.

ELMES, JAMES, father of the preceding, an architect, civil engineer, and writer on the arts, was born in London, October 15, 1782. In 1809 he became vice-president of the Royal Architectural Society, but this office, as well as that of surveyor of the port of London, he was compelled through partial loss of sight to resign in 1828. He died at Greenwich, April 2, 1862.

ELMINA, a town and fort on the Gold Coast, Upper Guinea, West Africa, now a British possession, is situated on a peninsula bounded on the north by the

River Benyan, or Beyuh, about six miles west of Cape Coast Castle.

ELMIRA, a city of the United States, capital of Chemung County, New York, is situated in a fertile valley on the Chemung River, and on the Erie and Northern Central Railroads, 274 miles west-northwest of New York. By the Chemung Canal it is connected with Seneca Lake, twenty miles distant, and by the Junction Canal with the interior of Pennsylvania. The population, in 1889, is about 26,000.

EL-OBEID, LOBEID, or OBEIDH, the chief town of the country of Kordofan, in Africa, and the seat of an Egyptian governor, is situated at a height of 1,700 feet above the sea, at the foot of Jebel Kordofan, about 150 miles west of the Bahr-el Abiad, or White Nile.

ELOI, St., originally a goldsmith, but afterward bishop of Noyon, was born at Cadillac, near Limoges, in 588. Having manifested at an early age a decided talent for the art of design, he was placed by his parents with the master of the mint at Limoges, where he made rapid progress in goldsmith's work. He became coiner to Clotaire II. of France, and treasurer to his successor, Dugabert. Both kings intrusted him with important works, among which were the composition of the bas-reliefs which ornament the tomb of St. Germain, bishop of Paris, and the execution (for Clotaire) of two chairs of gold, adorned with jewels, which at that time were reckoned *chefs d'œuvre*. Though he was amassing great wealth, Eloi acquired a distaste for a worldly life, and resolved to become a priest. At first he retired to a monastery, but in 640 was raised to the bishopric of Noyon. He made frequent missionary excursions to the pagans of Brabant, and also founded a great many monasteries and churches. He died December 1, 659.

EL PASO, or EL PASO DEL NORTE, a town of Mexico, in the State of Chihuahua, situated on the Rio Grande, in a narrow valley near the frontier of Texas, 340 miles west-southwest of Santa Fé. The name is often applied to a whole group of small settlements on the Rio Grande, but belongs properly to the largest.

EL PASO, the county seat of El Paso county, Tex.; lies just across the frontier from Mexico. It is a railway and telegraph center, and has a population of 8,500.

ELPHINSTONE, an eminent Indian statesman, fourth son of the eleventh Baron Elphinstone in the peerage of Scotland, was born in 1779. Having received an appointment in the civil service of the East India Company, of which one of his uncles was a director, he reached Calcutta in the beginning of 1796. After filling several subordinate posts, he was appointed, in 1801, assistant to the British resident at Poonah, at the court of the Peishwa, the most powerful of the Mahratta princes. Here he obtained his first opportunity of distinction, being attached in the capacity of diplomatist to the mission of Sir Arthur Wellesley to the Mahrattas. When, on the failure of negotiations, war broke out, Elphinstone, though a civilian, acted as virtual *aide-de-camp* to General Wellesley.

In 1808 he was placed at the head of a most important political mission to Central Asia, being appointed the first British envoy to the court of Cabul, with the object of securing a friendly alliance with the Afghans in view of a possible French invasion. The negotiations, protracted and difficult, resulted in a treaty securing what the English wished; but it proved of little value, partly because the danger of invasion had passed away, and partly because the Shah Shuja was driven from the throne by his brother before it could be ratified. The most valuable permanent result of the embassy was the literary fruit it bore several years afterward in Elphinstone's great work on Cabul. After spending about a year in Calcutta

arranging the report of his mission, Elphinstone was appointed, in 1811, to the important and difficult post of resident at Poonah.

The characteristic feature of his policy was his scrupulous regard for the customs, interests, and wishes of the native population, in so far as these were compatible with the British supremacy. Recognizing the deep-seated conservatism of the Hindu character, he avoided needless change, and sought rather to develop what reforms seemed essential from within than to impose them from without. With this view, he preserved as far as possible, the native system of administration of justice, and maintained the landholders and chiefs in the possession of their rights and privileges. His conciliatory administration not only drew to him personally the attachment of all classes, but was of the utmost benefit in confirming the British authority in the newly annexed territory, which might easily have been brought by a different policy to throw off the yoke.

On his return to England, the choice was open to him of a distinguished career in home politics or the highest place in the management of Indian affairs. But he was deficient in ambition, and his health had suffered so much from his residence in India, that he deemed himself disqualified for public life. Accordingly, although the governor-generalship of India was twice offered to him in the most flattering terms within a few years of his return, he declined it on both occasions; and he resisted with equal firmness all attempts to induce him to enter the home Parliament. It is understood that he declined the offer of a peerage. The retirement in which he spent the last thirty years of his life, however, was far from being either indolent or dishonorable. He had, long before his return from India, made his reputation as an author, by the work on Cabul, which was published in 1815, with the title *An Account of the Kingdom of Cabul and its Dependencies in Persia and India*. Soon after his arrival in England he commenced the preparation of a work of wider scope, a history of India, which was published in 1841. It embraced the Hindu and Mahometan periods, and is generally regarded as a work of the highest authority. Its chief features are thoroughness of research, judicious use of materials, and condensation of style.

Mr. Elphinstone died at his residence at Limpsfield, in Surrey, on November 20, 1859.

ELPHINSTONE, WILLIAM, a Scottish prelate and statesman of considerable eminence, was born at Glasgow in 1431. From 1492 till the close of his life he held the office of lord privy seal. Elphinstone was also a zealous patron of learning. It is generally believed that the establishment of a university at Aberdeen was entirely owing to his influence with the Pope, from whom he obtained a bull for that purpose, and it was almost entirely by his exertions that King's College was undertaken and completed. At his death, which took place on October 25, 1514, at the advanced age of eighty-three, he bequeathed a sum of 10,000 pounds Scots for its erection and endowment, as well as for the maintenance of a bridge over the Dee.

EL ROSARIO, a town of Mexico, in the State of Sinaloa, fifty-five miles east of Mazatlan.

ELSINORE, or ELSINEUR (Danish, HELSINGÖR), a seaport town of Denmark, is situated in the district of Frederiksborg, on the east coast of the Island of Seeland.

ELVAS, a fortified frontier city of Portugal, in the Portalegre district of the province of Alemtejo, is situated near a sub-tributary of the Guadiana, on a hill belonging to the mountain chain of Zoledo, 105 miles east of Lisbon and ten miles west of the Spanish town of Badajoz, with which towns it is connected by railway.

ELY, a city of Cambridgeshire, England, is situated

on a considerable eminence in the Isle of Ely, near the Ouse, sixteen miles north-northeast of Cambridge. It is the seat of a bishop.

ELYSIUM, a name given by the Greeks to the abode of the righteous dead, who, in the words of Pindar, inherit there a tearless eternity. In the *Odyssey*, iv, 563, this region, which answers to the Hindu Sutala, is spoken of as a plain at the end of the earth, where the fair-haired Rhadamanthys lives.

ELYRIA, a railway and telegraph town, is the county seat of Lorain county, Ohio. It has rapidly grown recently, and has a population (1890) of 6,000.

ELYOT, SIR THOMAS, one of the most learned Englishmen of the time of Henry VIII., was the son of a certain Sir Richard Elyot, usually said to be of Suffolk, but, according to a suggestion by C. H. Cooper, in *Notes and Queries* (1853), more probably of Wiltshire. If an identification proposed by Wood be correct, Sir Thomas studied at St. Mary's Hall, Oxford, and obtained the degree of bachelor of arts in 1518, and that of bachelor of civil law in 1524, but according to Parker and others he belonged to Jesus College, Cambridge, and his name begins to appear in the list of justices of assize for the western circuit about 1511.

Unless his letters are to be distrusted, he was for the greater part of his life in very poor circumstances, and, in spite of the rolling rhetoric with which in his prefaces he celebrates the magnanimity of his patrons, received little from them but promises and praise. He died in 1546, and was buried at Carleton, in Cambridgeshire. Among his contemporaries and his immediate successors Elyot enjoyed a high reputation as a scholar; and his future fame was secured by his Latin dictionary and his book called the *Governor*.

ELZEVIR, the name of a celebrated family of Dutch printers belonging to the seventeenth century. The original name was Elsevier, or Elzevier, and their French editions mostly retain this name; but in their Latin editions, which are the more numerous, the name is spelt Elzevierius, which was gradually corrupted into Elzevir. The family originally came from Louvaine, and there Louis, who first made the name Elzevir famous, was born in 1540. He learned the business of a bookbinder, and having been compelled in 1580, on account of his political opinions, to leave his native country, he established himself as bookbinder and bookseller in Leyden. In all he published about 150 works. His typographical mark was the arms of the United Provinces—an eagle on a cippus holding in its claws a sheaf of seven arrows, with the inscription, *Concordia res parva cresunt*. He died February 4, 1617. Of his five sons, Matthieu, Louis, Gilles, Joost, and Bonaventure, who all adopted their father's profession, Bonaventure, who was born in 1583, is the most celebrated. He commenced business as a printer in 1608, and in 1626 took into partnership Abraham, a son of Matthieu, born at Leyden in 1592. Abraham died August 14, 1652, and Bonaventure about a month afterward. The fame of the Elzevir editions rests chiefly on the works issued by this firm. Their Greek and Hebrew impressions are considered inferior to those of the Aldi and the Estiennes, but their small editions in 12mo, 16mo, and 24mo, for elegance of design, neatness, clearness, and regularity of type, and beauty of paper, cannot be surpassed.

EMANUEL, King of Portugal, surnamed the Happy, was the son of Duke Ferdinand of Viscu and cousin of John II. of Portugal, and was born May 3, 1460. He dispatched Vasco da Gama to sail round the Cape of Good Hope in order to discover a new passage to India, and on his return he sent Pedro Alvarez de Cabral to complete his discoveries. Cabral discovered Brazil and

the Moluccas, and established commercial relations with the Indian and African coasts. Through these expeditions and others under Albuquerque, the influence of Portugal was rendered predominant on the coasts of South Africa and the Indian archipelago, and an inexhaustible field for commerce and colonization was opened up to the Portuguese. Emanuel also entered into commercial relations with Persia, Ethiopia, and China. His whole foreign policy, with the exception of an attempt to conquer Morocco, was a brilliant success; and at the close of his reign Portugal had attained a degree of prosperity, both external and internal, until then unexampled in her history. He was also no less anxious for the individual welfare of his subjects than for the outward prosperity of his kingdom. He made personal visits to all his provinces to inquire into the administration of justice, and he is the author of a code of laws which bears his name. At certain stated hours he was accessible to any of his subjects, without distinction, who desired redress of grievances, or had any request of importance to make, and so great was his courtesy and patience in listening to their statements that when necessary he sacrificed to them hours that he usually devoted to enjoyment or repose. His persecutions of the Jews, cruel as they were, can scarcely be blamed when we remember the bigotry of his time and country; and it says much for his impartial administration of justice that he caused the ring-leaders of a popular insurrection against that people to be executed with the usual marks of opprobrium. He died at Lisbon, December 13, 1521.

EMANUEL-BEN-SALOMON, a Hebrew poet, of whose life the few facts that are known are gathered from allusions in his works. He was born at Rome about the middle of the thirteenth century, and spent the greater part of his life in that city. He seems also to have resided for a considerable period at Fermo. The precise date of his death, like that of his birth, is unknown. His collected poems, entitled *Mechabberoth*, were printed at Brescia in 1491, and at Constantinople in 1535.

EMBALMING, the art of preparing dead bodies, chiefly by the use of medicaments, in order to preserve them from putrefaction and the attacks of insects. The ancient Egyptians carried the art to great perfection, and embalmed not only human beings, but cats, crocodiles, ichneumons, and other sacred animals. It has been suggested that the origin of embalming in Egypt is to be traced to a want of fuel for the purpose of cremation, to the inadvisability, or at some times impossibility, of burial in a soil annually disturbed by the inundation of the Nile, and to the necessity, for sanitary reasons, of preventing the decomposition of the bodies of the dead when placed in open sepulchers. As, however, the corpses of the embalmed must have constituted but a small proportion of the aggregate mass of animal matter daily to be disposed of, the above explanation is far from satisfactory; and it may be questioned whether embalming, together with the greater number of the Egyptian doctrines concerning a future life, may not have entirely originated in superstition or sentiment concerning the dead. Prichard holds it as probable that the views with which the Egyptians embalmed bodies were "akin to those which rendered the Greeks and Romans so anxious to perform the usual rites of sepulcher to their departed warriors, namely, . . . that these solemnities expedited the journey of the soul to the appointed region, where it was to receive judgment for its former deeds, and to have its future doom fixed accordingly." It has been supposed by some that the discovery of the preservation of bodies interred in saline soils may have been the immediate origin of embalming in Egypt. In that country certain classes of the com-

munity were specially appointed for the practice of the art. The brains were in part removed through the nostrils by means of a bent iron implement, and in part by the injection of drugs. The intestines having been drawn out through an incision in the left side, the abdomen was cleansed with palm-wine, and filled with myrrh, cassia, and other materials, and the opening was sewed up. This done, the body was steeped seventy days in a solution of litron or natron. Diodorus relates that the cutter appointed to make the incision in the flank for the removal of the intestines, as soon as he had performed his office, was pursued with stones and curses by those about him, it being held by the Egyptians a detestable thing to commit any violence or inflict a wound on the body. After the steeping, the body was washed, and handed over to the swathers, a peculiar class of the lowest order of priests, called by Plutarch *cholchyla*, by whom it was bandaged in gummed cloth; it was then ready for the coffin. Mummies thus prepared were considered to represent Osiris. In another method of embalming, costing twenty-two minæ (about £90), the abdomen was injected with "cedar-tree pitch," which, as it would seem from Pliny, was the liquid distillate of the pitch-pine. This is stated by Herodotus to have had a corrosive and solvent action on the viscera. After injection the body was steeped a certain number of days in natron; the contents of the abdomen were allowed to escape, and the process was then complete. The preparation of the bodies of the poorest consisted simply in placing them in natron for seventy days, after a previous rinsing of the abdomen with "syrmaea." The material principally used in the costlier modes of embalming appears to have been asphalt; wax was more rarely employed. In some cases embalming seems to have been effected by immersing the body in a bath of molten bitumen. Tanning also was resorted to. Occasionally the viscera, after treatment, were in part or wholly replaced in the body, together with wax figures of the four genii of Amenti. More commonly they were embalmed in a mixture of sand and asphalt, and buried in vases, or *canopi*, placed near the mummy, the abdomen being filled with chips and sawdust of cedar and a small quantity of natron. In one jar were placed the stomach and large intestine; in another, the small intestines; in a third, the lungs and heart; in a fourth, the gall-bladder and liver.

Embalming was still in vogue among the Egyptians in the time of St. Augustine, who says that they termed mummies *gabbara*. In modern times numerous methods of embalming have been practiced. By William Hunter, essential oil, alcohol, cinnamon, camphor, saltpeter, and pitch or rosin were employed, and the final desiccation of the body was effected by means of roasted gypsum placed in its coffin. Boudet embalmed with tan, salt, asphalt, and Peruvian bark, camphor, cinnamon, and other aromatics, and corrosive sublimate. The last mentioned drug, the chloride and sulphate of zinc, the acetate and sulphate of aluminium, and creosote and carbolic acid and arsenic have all been recommended by various modern embalmers.

EMBANKMENT is an engineering term used to denote any large heap of materials collected together by artificial means. Embankments are constructed for carrying roads or railways across valleys. They are also employed for protecting land from the encroachments of river floods, and on a larger scale, in low-lying countries, as a defense against the inroads of the sea. Embankments are also the main features in almost all schemes of water-works, being used for impounding water for supply of towns or compensation to mills. See IRRIGATION AND WATER-WORKS.

EMBER DAYS AND EMBER WEEKS, the four

seasons set apart by the Western Church for special prayer and fasting, and the ordination of clergy, known in the mediæval church as *quatuor tempora*, or *jejunia quatuor temporum*. The Ember weeks are the complete weeks next following Holy Cross Day (September 14th), St. Lucy's Day (December 13th), the first Sunday in Lent, and Whitsun Day. The Wednesdays, Fridays, and Saturdays of these weeks are the Ember days distinctively, the following Sundays being the days of ordination.

The observance of Ember days is confined to the Western Church, and had its origin as an ecclesiastical ordinance in Rome. They were probably at first the fasts preparatory to the three great festivals of Christmas, Easter, and Pentecost. A fourth was subsequently added, for the sake of symmetry, to make them correspond with the four seasons, and they became known as the *jejunium vernum æstivum, autumnale, and hiemale*, so that, to quote Pope Leo's words, "the law of abstinence might apply to every season of the year."

EMBEZZLEMENT, in English law, is a peculiar form of theft which is distinguished from the ordinary crime in two points:—(1) It is committed by a person who is in the position of clerk or servant to the owner of the property stolen; and (2) the property when stolen is in the possession of such clerk or servant. The definition of embezzlement as a special form of theft arose out of the difficulties caused by the legal doctrine that to constitute larceny the property must be taken out of the possession of the owner. Servants and others were thus able to steal with impunity goods intrusted to them by their masters.

EMBLEMENTS, in English law, means the growing crops, which belong to the tenant of an estate of uncertain duration, which has unexpectedly determined without any fault of his own.

EMBOSSING is the art of producing raised portions of patterns on the surface of metal, leather, textile fabrics, cardboard, paper, and similar substances. Strictly the term is applicable only to raised impressions produced by means of engraved dies or plates brought forcibly to bear on the material to be embossed, by various means, according to the nature of the substance acted on.

The stamped or struck ornaments in sheet metal, used especially in connection with the brass and Britannia metal trades, are obtained by a process of embossing—hard steel dies with forces or counter-parts of soft metal being used in their production (see BRASS). A kind of embossed ornament is formed on the surface of soft wood by first compressing and consequently sinking the parts intended to be embossed, then planing the whole surface level, after which, when the wood is placed in water, the previously depressed portion swells up and rises to its original level. Thus an embossed pattern is produced which may be subsequently sharpened and finished by the ordinary process of carving.

EMBROIDERY is the art of working with the needle flowers, fruits, human and animal forms upon wool, silk, linen, or other woven texture. That it is of the greatest antiquity we have the testimony of Moses and Homer, and it takes precedence of painting, as the earliest method of representing figures and ornaments was by needle-work traced upon canvas. From the earliest times it served to decorate the sacerdotal vestments and other objects applied to ecclesiastical use, and queens deemed it an honor to occupy their leisure hours in delineating with the needle the achievements of their heroes. The Jews are supposed to have derived their skill in needle-work from the Egyptians, with whom the art of embroidery was general; they produced figured cloths by the needle and the loom, and practiced the art

of introducing gold thread or wire into their work. Amasis, King of Egypt, sent to the Minerva of Lindus a linen corslet with figures interwoven and embroidered with gold and wool; and, to judge from a passage in Ezekiel, they even embroidered the sails of their galleys which they exported to Tyre; "Fine linen with brodered work from Egypt was that which thou spreadest forth to be thy sail." Embroidery and tapestry are often confounded; the distinction should be clearly understood. Embroidery is worked upon a woven texture having both warp and woof, whereas tapestry is wrought in a loom upon a warp stretched along its frame, but has no warp thrown across by the shuttle; the weft is done with short threads variously colored and put in by a kind of needle.

Homer makes constant allusion to embroidery. Penelope (to say nothing for her immortal web) throws over Ulysses on his departure for Troy an embroidered garment of gold on which she had depicted incidents of the chase. Helen is described as sitting apart, engaged in working a gorgeous suit upon which she had portrayed the wars of Troy; and Andromache was embroidering flowers of various hues upon a purple cloth when the cries of the people without informed her of the tragic end of Hector. In Greece the art was held in the greatest honor, and its invention ascribed to Minerva, and prompt was her punishment of the luckless Arachne for daring to doubt her supremacy in the art. The maidens who took part in the procession of the Panathenia embroidered the veil or peplum, upon which the deeds of the goddess were worked in embroidery and gold.

Phrygia became celebrated for the beauty of its needle-work. The "toga picta," ornamented with Phrygian embroidery, was worn by the Roman generals at their triumphs, and by their consuls when they celebrated the games—hence embroidery itself in Latin is styled "Phrygian," and the Romans knew it under no other name.

Babylon was no less renowned for its embroideries, and maintained its reputation up to the first century of the Christian era.

Passing to the first ages of the Christian era, we find the pontifical ornaments, the tissues that decorated the altars, and the curtains of the churches all worked with the holy images; and in the fifth century the art of weaving stuffs and enriching them with embroidery was carried to the highest degree of perfection.

In mediæval times, spinning and embroidery were the occupation of women of all ranks, from the palace to the cloister, and a sharp rivalry existed in the production of sacerdotal vestments and ornaments. So early as the sixth century, St. Césaire, bishop of Arles, forbade the nuns under his rule from embroidering robes adorned with paintings, flowers, and precious stones. This prohibition, however, was not of a general character. Near Ely, an Anglo-Saxon lady brought together a number of girls who produced admirable embroidery for the benefit of the monastery; and in the seventh century, St. Eustadiolæ, abbess of Bourges, made sacred vestments and decorated the altar with works by herself and her community. A century later, two sisters, abbesses of Valentina, in Belgium, became famous for their excellence in all feminine pursuits, and imposed embroidery work upon the inmates of their convent as a protection from idleness, the most dangerous of all evils.

At the beginning of the ninth century, ladies of rank are to be found engaged in embroidery. St. Viboradæ, living at St. Gall, adorned beautiful coverings for the sacred books of that monastery, it being then the custom to wrap in silk and carry on a linen cloth the

Gospels used for the offices of the church; and the same abbey received from Hadwiga, daughter of Henry, Duke of Swabia, chasubles and ornaments embroidered by the hand of that princess. Judith of Bavaria, mother of Charles the Bald, was also a skillful embroidress. When Harold, King of Denmark, came to be baptized at Ingelheim with all his family, the Empress Judith, who stood sponsor for the queen, presented her with a robe enriched by herself with gold and precious stones. In the tenth century, Queen Adhelais, wife of Hugh Capet, presented to the church of St. Martin at Tours, and another to the abbey of St. Denis, two chasubles of different designs but of wonderful workmanship.

In the eleventh, or probably early in the twelfth, century was executed the valuable specimen preserved to us, the so-called tapestry of Bayeux, ascribed by early tradition to no less a lady than Queen Matilda, and representing the various episodes of the conquest of England by William of Normandy. It is not tapestry, but an embroidery work in crewels in "long-stitch" of various colors, on a linen cloth 19 inches wide by 226 yards long. Probabilities forbid us from believing that Matilda and her waiting maids ever did a stitch on this canvas, which, crowded as it is with fighting men, some on foot some on horseback, must have taken much time and busied many fingers to execute; nor is it likely that Matilda would have chosen coarse linen and common worsted as the materials with which to celebrate her husband's achievements.

The art of pictorial needle-work had become universally spread. The inventory of the Holy See (1295) mentions the embroideries of Florence, Milan, Lucca, France, England, Germany, and Spain. The Paris embroiderers had formed themselves into a guild; and throughout the Middle Ages down to the sixteenth century embroidery was an art, a serious branch of painting. The needle, like the brush of the painter, moved over the tissue, leaving behind its colored threads, and producing a painting soft in tone and ingenious in execution. At Verona, an artist took twenty-six years to execute in needle-work the life of St. John, after the designs of Pollaniolo, as an offering to that church at Florence. Catherine de' Medici, herself a distinguished needle-woman, brought over in her train from Florence the designer for embroidery, Frederick Vinciolo; and under her sons, so overloaded was dress with ornament as to be described by contemporaries as to be "stiff" with embroidery.

In France this time was a glorious period for needle-work. Not only was the fashion continued, as in England, of producing figures and portraits, but a fresh development was given to floral and arabesque ornament. Flowers in the grandiose style, wrought with arabesques of gold and silver, among which sported birds and insects, were the characteristic designs of the period; and Gaston, Duke of Orleans, established hot-houses and botanical gardens, which he filled with rare exotics, to supply the needle with new forms and richer tints. The crown manufacturers adorned the rich brocades of Tours, watered silks, and cloths of silver with patterns furnished by Charles Le Brun for the portières and curtains to the rooms he had designed. Hangings, furniture, costumes, equipages—embroidery invaded all. The throne of Louis XV., used for the reception of the Knights of the Holy Ghost, alone cost 300,000 livres; nor was the embroidery of the state coaches of Marie Antoinette less costly.

In an industrial point of view, the art may be ranged into two classes. First, there is white embroidery, applied to dress and furniture, upon cloth, muslin, or tulle, in which France and Switzerland hold the first

place, and then Scotland and Saxony. The second class comprises works in silk, gold, and silver, the two last more especially dedicated to church ornaments and military costume. From the East we derive the most elaborate specimens of embroidery as applied to dress and furniture; for while in the West these are chiefly used for the church and costume, in the East every article of domestic use is covered with embroideries in silver and gold. The Chinese embroider the imperial dragon upon their robes of crimson satin; nor are the Japanese works less gorgeous or in less perfect taste. The Persians, in the seventeenth century, sent to Europe rich embroidered coverlets for the state beds of the period. They work extensively in chain-stitch. A supplementary division may be made of the so-called Berlin work, executed in wool and silk upon canvas, in cross-stitch, or point de marque, as it was formerly called, as being the stitch used for marking.

EMBRUN, a fortified town of France, capital of the *arrondissement* of the same name, in the department of Hautes-Alpes, is situated on a steep rock near the right bank of the Durance, twenty-five miles east of Gap. It has woolen and linen manufactures.

EMBRYOLOGY is a branch of biological inquiry comprising the history of the young of man and animals, and it may be also of plants.

In all animals, with the exception of the Protozoa, the new being, deriving its origin from a definite organized structure termed the ovum or egg, passes during the progress of its formation and growth from a simpler to a more complex form and organic structure by a series of consecutive changes which come under the general denomination of *development*. The consideration of these changes, which is mainly an anatomical subject, being partly morphological as affecting the larger and more obvious organic form, and partly histological as belonging to the minute or textural structure, constitutes by far the greater part of the science of embryology, but the latter word may also include the history of all other living phenomena manifested by the young animal in the progress of its growth to maturity.

The formative process through which the embryo passes is necessarily of very different degrees of complexity, according to the more simple or complex organization of the adult animal to which it belongs. But it presents throughout the whole range of animals certain general features of similarity dependent on the fundamental resemblance of the organized elements from which all animals derive their origin.

A minute mass of protoplasm constitutes not only the simplest, but also the invariable, form presented by the germinal part of the ovum or egg, and in all animals, except the Protozoa, in which the nature of the germ is still doubtful, it takes at first the form of an organized cell, or it is a definite spherical and nucleated mass of protoplasm. It is therefore a germ-cell.

In all ova the first stage of the formative process, following upon fecundation of the germ, consists in the multiplication of the egg or germ-cell by a process of the nature of fissiparous division, so that when this division has proceeded some length, it results in the production of a mass or congeries of organized cells descended from that which formed the primitive germ, and containing in combination the molecular elements of the materials contributed by the male and female parents to the formation of the fertilized germ. This is the mulberry stage, or *morula*, of Haeckel. In a more advanced stage among the higher animals, the cells of this mass assume more or less of a laminar arrangement, constituting the *blastoderm* or germinal membrane of Pander and succeeding authors; and in the first and lowest forms of this structure two layers are distinguished, corre-

sponding to the outer and inner cellular laminae of which the earliest form of the embryo consists in the higher, and the whole of the body in the lower forms of animals. These layers are the *ectoderm* and *endoderm* of the embryologist and comparative anatomist (Huxley and Allman).

In the lowest animals little if any further differentiation of the germinal structures ensues; but in animals higher in the scale there arises a third or intermediate layer, the *mesoderm*, which takes an important part along with the other two layers in the formation of the animal organism. The cellular blastoderm, therefore, is already the embryo of the lowest animals; while in the higher that term could scarcely with propriety be applied to the product of development in the egg until some of the characteristic lineaments, however rudimentary, of the new animal are apparent.

But in the whole of this process of embryonic development, whether it be of the simplest or of the most complex kind, it is to be observed that it is solely by the multiplication and differentiation of cells which have descended more or less directly from the original germ-cell that the organizing process is effected. It follows from this that the processes of organic growth or embryonic development present a textural or histological uniformity to a remarkable degree throughout the whole zoological series. There is also a very striking similarity in the morphological phenomena of development within large groups of animals. Our knowledge, indeed, of the mode of formation of the young in all the varied forms of animal organization is still too limited to admit of our affirming that a uniform and progressive morphological type pervades the whole animal kingdom; but already many ascertained facts point strongly to such a conclusion, and the more our knowledge of the process of development in individual animals (*ontogeny*) advances, the greater resemblance do we recognize in the formative processes; so that it becomes more and more probable that the morphological development of any of the higher animals includes, or as it were repeats within certain limits, the various steps of the process which belong to the inferior grades of the animal kingdom. Hence we are led to the further conclusion that there is an essential correspondence between the individual development or ontogeny of the higher animals and the progressive advance of the organization in the whole animal series.

If, further, we adopt the Darwinian view of the evolution of animal life and organization by descent of one species of animals from others preceding it, we shall see that the embryological history of any animal is at the same time the history of its relation to other animals and of its phylogenetic development or gradual derivation as a species from more simple progenitors in the lapse of time. It is obvious, therefore, that we must look to the future progress of embryology as well as paleontology for a large portion of the facts upon which the confirmation of the modern theory of evolution will rest.

EMDEN, formerly EMBDEN, a maritime town of Prussia, in the district of Aurich, province of Hanover, is situated near the mouth of the Ems, on the Westphalian Railway, forty-five miles west-northwest of Oldenburg.

EMERALD, a precious stone classed mineralogically with the beryl, from which, however, it differs in having a fine green color, attributed to the presence in it of chromium sesquioxide; it also never presents the internal striae often seen in the beryl. Various virtues were formerly ascribed to the gem; it was said to be good for the eyes, to color water green, to assist women in childbirth, and to drive away evil spirits; and in the

East it is still accredited with talismanic and medicinal properties. One of the most celebrated examples of the emerald is that in the possession of the Duke of Devonshire, measuring upward of 2 inches in length, and across its three diameters $2\frac{1}{4}$, $2\frac{1}{2}$, and $1\frac{1}{2}$ inches. Other fine stones are the Hope emerald, weighing six ounces, and those of the Russian, Saxon, and Papal crowns. Emeralds are cut on a copper wheel with emery, and polished on a tin wheel with rotten-stone. "In a good gem," says Mr. Emanuel, "the surface must be perfectly straight and smooth, so as to cast no darkening shadow on any of its particles." The form usually given to emeralds is that of a square table with the edges replaced, the lower surface being cut into facets parallel to their sides. When fine they are always set without a foil; and, as their brilliancy is somewhat impaired by candle-light, they are generally surrounded with small diamonds or pearls, which enhance their effect. The gem has been very successfully imitated by manufacturers of paste stones, the coloring matter used being oxide of chromium. As a gem the emerald is reckoned inferior only to the diamond and ruby; but, unlike them, it does not increase in value in proportion to the cube of its weight. What is termed the Oriental emerald is a green variety of corundum, an exceedingly scarce gem.

EMERIC-DAVID, TOUSSAINT-BERNARD, a French archaeologist and writer on art, was born at Aix, in Provence, August 20, 1755. He was elected mayor of Aix in 1791; and although he speedily resigned his office, he was in 1793 threatened with arrest, and had for some time to adopt a vagrant life. When danger was past he returned to Aix, sold his printing business, and engaged in general commercial pursuits; but he was not long in renouncing these also, in order to devote himself exclusively to literature and art. From 1809 to 1815, he represented his department in the legislative chamber, and in 1816 he was elected a member of the Institute. He died at Paris, April 2, 1839.

EMERSON, WILLIAM, an eminent but eccentric mathematician, was born May 14, 1701, at Hurworth, near Darlington, where his father, Dudley Emerson, also a mathematician of high attainments, taught a school. From him young Emerson received a thorough mathematical education, and the bequest of a good mathematical library. For his classical training he was indebted to the curate of Hurworth, who lodged in his father's house. In the earlier part of his life he followed his father's profession, but with little success; and this, coupled with the fact of his having received as an only child a moderate competence from his parents, led him to devote himself entirely to studious retirement. Toward the close of 1781 he relinquished his studies and disposed of his library. His death took place soon after, May 20, 1782, at his native village, in the eighty-first year of his age.

EMERY, an impure variety of the mineral corundum, bluish-gray to brownish in color, dimly translucent, and granular and rough in fracture, and having a hardness of 9, and specific gravity varying between 3.7 and 4.3. Much of the emery of commerce is artificially colored of a rich reddish brown. Analyses of emery show a percentage composition of from about 60 to 80 per cent of alumina, and 8 to 33 per cent of ferric oxide, with small quantities of lime, silica, and water. It occurs in amorphous masses in schists, gneiss, granular limestone, and other crystalline rocks, and in rolled and detached pieces and in granules in soils.

EMETICS, substances which are administered for the purpose of producing vomiting. They are usually regarded as of two varieties, viz., those which produce their effect in virtue of their absorption into the blood

and consequent influence upon the nerve centers, and those which act topically on the mucous membrane of the stomach, giving rise to vomiting as the result of reflex action.

EMU, evidently from the Portuguese *Ema*, a name which has in turn been applied to each of the earlier-known forms of Ratite Birds, but has in all likelihood finally settled upon that which inhabits Australia, though until less than a century ago, it was given by most authors to the bird now commonly called Cassowary — this last word being a corrupted form of the Malayan *Suwari*.

The Cassowaries and Emeus have much structural resemblance, and form the Order *Megistanes*, which is peculiar to the Australian Region. Professor Huxley has shown that they agree in differing from the other *Ratite* in many important characters, into the details of which it is now impossible to enter; but one of the most obvious of them is that each contour-feather appears to be double, its aftershaft being as long as the main shaft — a feature noticed in the case of either form so soon as samples were brought to Europe. The external distinctions of the two families are, however, equally plain. The Cassowaries, when adult, bear a horny helmet on their head, they have some part of the neck bare, generally more or less ornamented with caruncles, and claw of the inner toe is remarkably elongated. The Emeus have no helmet, their head is feathered, their neck has no caruncles, and their inner toes bear a claw of no singular character. For a long time its glossy, but coarse and hair-like plumage, its lofty helmet, the gaudily-colored caruncles of its neck, and the four or five barbed quills which represent its wing-feathers, made it appear unique among birds. But in 1857 Dr. George Bennett certified the existence of a second and perfectly distinct species of Cassowary, an inhabitant of New Britain.

Not much seems to be known of the habits of any of the Cassowaries in a state of nature. Though the old species occurs rather plentifully over the whole of the interior of Ceram, Mr. Wallace was unable to obtain or even to see an example. They all appear to bear captivity well, and the hens in confinement frequently lay their dark green and rough-shelled eggs, which, according to the custom of the *Ratite*, are incubated by the cocks.

Of the Emeus (as the word is now restricted) the best-known is the *Casuarus nova-hollandie* of Latham, made by Vieillot the type of his genus *Dromas*, whence the name of the family is taken. This bird, immediately after the colonization of New South Wales (in 1788), was found to inhabit the southeastern portion of Australia; but it has now been so hunted down that not an example remains at large in the districts that have been fully settled. A remarkable structure in *Dromas* is a singular opening in the front of the windpipe, communicating with a tracheal pouch. This has attracted the attention of several anatomists, and has been well described by Doctor Murie. Various conjectures have been made as to its function, the most probable of which seems to be that it is an organ of sound in the breeding-season, at which time the hen-bird has long been known to utter a remarkably loud booming note. Due convenience being afforded to it, the Emeu thrives well, and readily propagates its kind in Europe. It is the only form of Ratite bird which naturally takes to the water.

EMIGRATION, now one of the most constant and orderly movements of human society, must have been one of the earliest, however irregular, of human impulses. It is the act of men, families, tribes, or parts of tribes, leaving the place of their birth with the view of settling in some other place. They are emigrants

in the country they leave, and immigrants in the country they pass into. But this converse nomenclature describes an identical class of persons and the same kind of adventure, more necessary now than ever to be distinguished from migrations within a given territory, or the frequent travelings between distant countries in which many engage, whether on purpose of business or pleasure. Emigration is a going out with a design of permanently settling in new seats of residence, labor, trade, and society. It is the practical response which mankind have given in all ages to the command to "multiply, and replenish the earth, and subdue it;" or, in other words, it is a necessary result of the increase of population within a limited though cherished space, and of the appointed destiny of our race to people and develop the world.

The natural law of population, though probably the deep underlying force of all emigrations, is not the only force at work in the general movement by which people, and races of people, have migrated from one part of the world to another. Not only famines, which may be said to present the pressure of population in its intensest forms, but wars of official conquest and ambition, religious persecutions and religious phantasies, civil broils and political revolutions, the discovery of gold and silver mines, the envy of more genial climes and fertile lands than people have been born to, the individual love of change and adventure and pushing one's fortune, have considerable power in promoting emigrations, apart from the rude pressure of physical wants. Famines in India, for example, do not result in much emigration; and yet the Irish famine in 1846-7 led immediately to one of the most remarkable removals of persons and families from one hemisphere to another in modern times. It would be difficult to account by the law and population for the successive immigrations of Saxons, Danes, and Normans into England, or to maintain that it was a force of hunger only which impelled the Northern barbarians to attack the Roman Empire. In the invasion of Turkey in 1877, the Russian soldiers are said to have been surprised at the plenty of the Bulgarian towns and villages, and to have had curious reflections why they should have been led so far afield to battle for the relief of a population so much more comfortably bestowed than themselves. Yet, when the Russian soldiers returned to their comparatively sterile homes, having seen the abundance of grain and fruits and flowers on the slopes of the Balkans, their accounts probably only increased the Muscovite passion to penetrate by force of arms into more productive regions than those of Northern Europe and Asia. We must allow, in short, for many causes of emigration, as well as many wrong views of the means by which the advantages of emigration are to be realized.

It may be presumed, notwithstanding the imperfect civilization of many large regions of the world, that emigration has now attained so many ways and means, and so well established an order, as to proceed more spontaneously and functionally, and be less indebted to violent forces for its impulsion, than in past times. The striking modern form of emigration is the removal of individuals and families from their native seats to distant countries, in large numbers, yet without concert and without apparent distress, silently and intelligently, the emigrants knowing what they are leaving and whither they are going. Emigration of this kind, like the commerce in commodities, does not advance rapidly for a long period. The first adventurers have often a rough experience, and do not invite others, but gradually the number who succeed increases, and in their letters home encourage relatives and friends to follow their example, and not infrequently supply the means of acting upon

their advice. This, in a constant and cumulative form, comes to have more real and wholesome influence than all the emigration aid societies ever established, however useful these may have been in their place. The traffic of the steam navigation companies during the last twenty-five years would show how largely the volume of free and well-considered emigration has thus been increased; and indeed, it may be observed that emigration of this kind has received much the same impetus as material commerce from the ocean steamers, railways, telegraphs, and other greatly improved means of transmission. The movement is liable to its own fluctuations; it ebbs and flows from one year to another; but of its permanence and extension there can be no reasonable doubt.

Foreign and colonial emigration is now so widely practiced, and has been rendered by improved means of transit so safe and expeditious, that its continued progress is not only sure, but one may foresee, from the various forces in play, that at no distant time it will have become, over the largest portion of the world, as familiar as migration from one province of the same country to another. The attitude and duties of states, toward a movement which comes into contact at many points with existing laws and interests — laws of naturalization, military conscription, and allegiance, with asserted rights of labor, and with social, religious, and international prejudices — have thus become questions of much importance.

The duty of states in regard to emigration, viewed in what must now be the generally accepted light of a necessary and wholesome function of the general economy, thus resolves itself into a duty of regulation and guardianship under the two categories, always presented, of the countries which the emigrants leave, and the countries to which they go. The one are bound to see that emigrant ships are well found and not overcrowded, and that adequate arrangements are made for the provisioning, health, and safety of the passengers in their transit; while the other are bound to give him shelter and guidance on landing, to protect them from imposture, and to see that all preengagements made with them be fulfilled.

Of the regulations for the reception of immigrants the arrangements at New York afford probably one of the best examples. If no country has had more to do with the shipping of emigrants than the United Kingdom, no place has had more to do with their reception than the great American seaport; and measures have been adopted there by which the abuses once prevailing have been overcome, and at the same time all the arrangements for the comfort, security, and guidance of immigrants have been placed on a satisfactory basis. Emigrant ships are visited six miles from the port by health officers, and any who may be sick or diseased are removed to hospitals under the care of the commissioners of emigration or the quarantine commission. The others are required to land at Castle Garden, where there is a large rotunda capable of accommodating 4,000 persons, and where every immediate want of the emigrants may be supplied without leaving the depot. Letters may be written for them, or telegrams despatched to friends, or friends may be introduced immediately on their credentials being presented. The utmost care is taken to guard the immigrants from falling into bad hands, and every information is afforded them as to how they shall best proceed in their respective objects. The supervision thus exercised in the port is extended over the railways to the various parts of the Union to which immigrants may be bound. Besides such arrangements, no less honorable to the authorities of a country than encouraging to the emigrant, direct inducements have frequently been held out to settlers.

both in the United States and the British colonies, in the form of grants of land or land at a cheap price, and in assisted or free passages. Unless it be when emigrants move in a large group or body, with the view of settling together in one place, a free grant of land may prove illusory, from not being suited to the industrial aptitudes of the emigrant or not situated in a locality where he would choose to reside. But when the Government of a State or colony offers assisted or free passages, it may be safely concluded that there is immediate demand for the services of the emigrants; and, as in such cases, the classes of work-people required are usually specified, there is an additional security against misunderstanding or misadventure. It may be observed that Her Majesty's commissioners of emigration will not advise intending emigrants where they should go or where their particular qualifications or occupations are in most demand; but they will sometimes warn intending emigrants where they should not go, and much evil might occasionally be averted were an appeal made to this negative advice, more especially when tempting offers and attractions are presented from quarters of the world in which the failures of emigration have hitherto been much more frequent than the successes.

EMMAUS, a village to which, in the narrative of Luke, it is said two of the disciples of Jesus were journeying, when he appeared to them on the day of his resurrection.

EMMERICH (the ancient *Embrica*), a town of Prussia, in the government district of Düsseldorf, is situated on the right bank of the Rhine, and on the railway from Cologne to Amsterdam, five miles north-east of Cleeves.

EMMET, ROBERT, brother of the subject of the next article, was born in Dublin, in 1778. He was a school-fellow of the poet, Thomas Moore, and his senior by a year at Trinity College, Dublin. Both were members of the Historical Society, and the great champions of the popular side. In 1798 Emmet was expelled from the university, on the ground of being connected with the Association of United Irishmen. He shortly afterward went to the Continent, and remained there till 1802, when he returned secretly to Dublin, and endeavored to plan a general Irish revolution. On July 23, 1803, deeming that the time had come to execute his scheme, he made an attempt to seize the arsenal and castle of Dublin; but the mob which he headed scarcely achieved so much as a serious riot, for they dispersed at the first military volley. Emmet fled to the Wicklow Mountains, and, perceiving that success was now impossible, resolved to escape to the Continent; but, contrary to the advice of his friends, he determined to have a last interview with the lady to whom he was attached, a daughter of Curran, the celebrated barrister. The delay proved fatal to him. He was apprehended, and committed for trial on the charge of high treason. He defended himself in a speech of remarkable eloquence, but was condemned to death, and, on September 20, 1803, was executed in St. Thomas street, Dublin. Moore, in one of the most pathetic of his Irish melodies, *O Breathe Not His Name*, commemorates Emmet's fate; and that of Miss Curran, who died in Sicily soon after him, is the subject of another, *She is Far from the Land Where Her Young Hero Sleeps*. Although it must be allowed that the conduct of Emmet in his revolutionary attempt was rash and mistaken, the high purity and unselfishness of his intentions have never been questioned.

EMMET, THOMAS ADDIS, a lawyer and politician, was born in Cork, on April 24, 1764. He was the second son of Dr. Robert Emmet, who latterly was state physician in Dublin. After attending the school

of Mr. Kerr, in Cork, Thomas, in 1778, entered Trinity College, Dublin. In 1783 he went to study medicine at the University of Edinburgh, where he continued four years. He then visited the chief medical schools of the Continent, and, after traveling through Germany, France, and Italy, returned in 1788 to Ireland. Owing, he himself says, to the advice of Sir James Mackintosh, he now resolved to forsake medicine for law; and, with the view of preparing himself for the Irish bar, he studied two years at the Temple, London. He was admitted a member of the Dublin bar in 1790. In the earlier years of his practice, he was often engaged as counsel for those of the United Irishmen who were accused of political offenses; but, after he became more closely connected with the association, it was deemed prudent that, while privately acting as their legal adviser in all matters, he should no longer be engaged in the public defense of any of their number. In 1797 he became one of the directory of the association, and on the arrest of O'Connor about the middle of the same year, he succeeded him as chief leader. On March 12, 1798, he and other leaders were arrested, and, after being examined at the castle, were committed to Newgate. He was examined before a secret committee of the House of Lords, and afterward before a secret committee of the House of Commons; and, on April 9, 1799, he was conveyed as a prisoner to Fort George, Scotland, where he remained till June, 1802. He then received his liberty, but only on condition that he spent the remainder of his life on a foreign soil, his return to British territory being forbidden by severe penalties. After being conveyed to Cuxhaven, he proceeded to Hamburg, and finally to Brussels, where he passed the winter. In the beginning of 1803, he went to France, and had an interview with Napoleon; but, having little faith in Napoleon's designs of invading England, he, in the end of the year, embarked for America. Here he rose to considerable eminence at the New York bar, and in 1812 held, for a short time, the office of attorney-general of the State of New York. He died suddenly, November 14, 1827, while conducting a case in the United States Circuit Court.

EMMIUS, UBBO, a celebrated Dutch historian and geographer, was born at Gretha in East Friesland. He was chosen Rector of the College of Norden in 1579, but was ejected in 1587, for refusing to subscribe the confession of Augsburg. He was subsequently Rector of the Colleges of Leer and Groningen, and when in 1614 the college in the latter city obtained a university charter, he was chosen as its principal and its professor of history and Greek, and by his wise guidance and his learning raised it speedily to a position of great eminence. He died December 9, 1626.

EMPEDOCLES, one of the most imposing and enigmatic figures in early Greek philosophy, was a native of Agrigentum in Sicily, and lived in the fifth century, probably from 490 to 430 B.C. The details of his life are full of fable and contradictions. The most probable accounts represent him as belonging to an honorable family in the palmy days of his city, as a champion of free institutions, like his father Meton, detecting the aims of incipient tyrants, and crushing the opponents of popular rights, but as finally forced, through the change of parties that occurred during his visit to Olympia, to forego his native city, and to return to Peloponnesus to die. Of his poem on nature there are left about 400 lines in unequal fragments out of the original 5,000; of the hymns of purification less than 100 verses remain; of the other works, improbably assigned to him, nothing is known. His grand but obscure hexameters, after the example of Parmenides, deluged Lucretius. Aristotle, it is said, called him the father of rhetoric. But it was

as at once statesman, prophet, physicist, physician, and reformer that he most impressed the popular imagination. To his contemporaries, as to himself, he seemed more than a mere man.

EMPEROR (*imperator*), a title formerly borne by the sovereigns of the Roman Empire, and since their time by a variety of other potentates. The term *imperator* seems to have originally belonged to every Roman magistrate who received the *imperium* (i.e., the power of the sword and authority to command in war). It was, therefore, in strictness not a title but a descriptive epithet. Toward the end of the Roman Republic, however, it had become rather a special title of honor bestowed by the acclamations of a victorious army on their general, or by a vote of the Senate as a reward for distinguished services, and in this sense it continued to be used during the earlier period of the Empire. Julius Cæsar, however, assumed it (under a vote of the Senate) in a different sense, viz., as a permanent title, or rather as a part of his name (*prænomen*), denoting the absolute military power which had come into his hands; and it was given by the Senate, in like manner and with a like significance, to Augustus. Tiberius and Claudius refused it; but under their successors it soon became established as the regular official title of the monarch of the Roman world, ultimately superseding the name of *princeps*.

On the revival of the Roman Empire in the West by Charles the Great in 800 A.D., the title (at first in the form *imperator*, or *imperator Augustus*, afterward *Romanorum imperator Augustus*) was taken by him and by his Frankish, Italian, and German successors, heads of the Holy Roman Empire, down till the abdication of the Emperor Francis II. in 1806. The doctrine had, however, grown up in the earlier Middle Ages (about the time of the emperor Henry II., 1002-1024) that although the emperor was chosen in Germany (at first by the nation, afterward by a small body of electors), and entitled from the moment of his election to be crowned in Rome by the Pope, he could not use the title of emperor until that coronation had actually taken place. The German sovereign, therefore, though he exercised, as soon as chosen, full imperial powers both in Germany and Italy, called himself merely "King of the Romans" (*Romanorum rex semper Augustus*) until he had received the sacred crown in the sacred city. In 1508 Maximilian I., being refused a passage to Rome by the Venetians, obtained from Pope Julius II. a bull permitting him to style himself emperor elect (*emperator electus*, erwählter Kaiser). This title was taken by Ferdinand I. (1558) and all succeeding emperors, immediately upon their coronation in Germany; and it was until 1806 their strict legal designation, and was always employed by them in proclamations and other official documents. The term "elect" was, however, omitted even in formal documents when the sovereign was addressed, or was spoken of in the third person.

In comparatively modern times, the title of emperor has been taken by the monarchs of Russia (Vassili, about 1520, his predecessors at Moscow having been called Great Dukes of Muscovy, and the title of czar or tsar being apparently a Slavonic word for prince, not related to Cæsar), France (Napoleon Bonaparte in 1804, Louis Napoleon Bonaparte in 1853), Austria (1805), Brazil (1822), Germany (December 31, 1870), Great Britain and Ireland in respect of the Indian dominions of the crown (1877). Usurpers who have reigned in Hayti, a certain Augustin Iturbide who (in 1822) became ruler of Mexico after the revolt against Spain, and the Archduke Maximilian of Austria during his short tenure of power in Mexico, also called themselves emperors; and modern usage applies the term to various

semi-civilized potentates, such as the sovereigns of China and Morocco. It can, therefore, hardly be said that the name has at present any definite descriptive force, such as it had in the Middle Ages, although its associations are chiefly with arbitrary military power, and it is vaguely supposed to imply a sort of precedence over kings. In the cases of Germany, Austria, and Britain in respect of India, it may perhaps be taken to denote that general over-lordship which their sovereigns exercise over minor princes and over their various territories, and which is distinct from their position as sovereigns of one or more particular kingdom or kingdoms, the German Emperor being also King of Prussia, as the Emperor of Austria is King of Hungary, and the Empress of India Queen of Great Britain and Ireland.

EMPHYSEMA, in medicine, means an abnormal presence of air in certain parts of the body. In its restricted sense, however, it is generally employed to designate a peculiar affection of the lungs, of which there are two forms. In one of these there is over-distension of the air-cells of these organs, and in parts destruction of their walls, giving rise to the formation of large sacs, from the rupture and running together of a number of continuous air-vesicles. This is termed *vesicular emphysema*. In the other form the air is infiltrated into the connective tissue beneath the pleura and between the pulmonary air-cells, constituting what is known as *interlobular emphysema*.

EMPIRE, a term used to denote either the territories governed by a person bearing the title of emperor, or, more generally, an extensive dominion. The historians of a former age were accustomed to enumerate a succession of great empires, and more especially the Babylonian and Assyrian, the Medo-Persian, and the Macedonian, which had embraced the greater part of the civilized world before the rise of Roman power, but that system has now been abandoned. In its strict sense, "the empire" meant during the Middle Ages, and indeed almost until the present century, the Romano-Germanic or so-called Holy Roman Empire, of which this is therefore the proper place to give a short account. The old Roman Empire, founded by Julius Cæsar and Augustus, was finally divided in 395 A.D. between Arcadius and Honorius, the two sons of Theodosius the Great—that is to say, one part of it, the Western, was ruled from Rome or Ravenna by one sovereign, and the other or Eastern half from Constantinople by another—although the whole was still held to constitute, in theory, a single Roman state which had been divided for administrative purposes. In 476 the Western throne was overturned by Odoacer, the leader of an army of barbarian mercenaries in the imperial service; and the provinces which had obeyed it, so far as they were not then already occupied by invading German tribes, reverted to the emperor reigning at Constantinople, who thereby became again sole titular monarch of the Roman world. Justinian reconquered Italy in the following century, and his successors retained Rome, though Constantinople was still their capital, for two centuries. This state of things lasted till 800, when Charles, King of the Franks (Charlemagne) was crowned emperor in Rome by Pope Leo III. All the Western provinces, excepting part of Italy had rebelled about seventy years before. The object of the elevation of the Frankish king was to make Rome again the capital of an undivided Roman empire, rather than to effect a severance by creating a separate Western empire; but as the Eastern empire continued to subsist, the effect of the step really was to establish two mutually hostile lines of emperors, each claiming to be the one rightful successor of Augustus and Constantine, but neither able to dispossess its rival. The imperial title,

which had fallen very low under the successors of Charles, was again revived in the west by Otto the Great, King of the East Franks, in 962; and from his time on there was an unbroken succession of German kings who took the name and enjoyed the titular rank and rights of Roman emperors, being acknowledged in the Western countries and by the Latin Church as the heads of the whole Christian community. Their power was, however, practically confined to Germany and Northern Italy, and after the death of Frederick II. (1250), it became comparatively weak even in those countries. In 1453 Constantinople was taken by the Turks, and the Eastern Roman Empire came to an end. The Western, however, though now so feeble that it could only be kept on foot by choosing as emperor some prince powerful by his hereditary dominions, lasted on till the year 1806, when Francis II. of Hapsburg, Archduke of Austria and King of Hungary and Bohemia, resigned his imperial title, and withdrew to the government of his hereditary kingdoms and principalities under the name (assumed the year before) of Emperor of Austria. With him the Holy Roman Empire ended.

EMPOLI, a town of Italy, in the province of Florence and district of San Miniato, is situated in a fertile plain on the river Arno, six miles from Florence, with which it is connected by railway.

EMPORIA, a railway and telegraph town of Kansas, the county seat of Lyon county. This town is rapidly growing in importance, and commands considerable trade from the surrounding country. Pop. (1890), 8,000.

EMPYEMA, a term in medicine applied to an accumulation of purulent fluid within the cavity of the pleura.

EMS, a watering place of Prussia, in the district of Wiesbaden, province of Hesse-Nassau, is situated on the Lahn, seven miles southeast of Coblenz, in a beautiful valley surrounded by wooded mountains and vine-clad hills. It possesses alkaline hot springs, which are used both for drinking and for bathing, and are considered of great efficacy as a remedy for chronic nervous diseases and affections of the liver and respiratory organs.

ENAMEL. An enamel may be best defined as a vitreous glaze fused to a metallic surface. There is indeed no difference between an enamel and a glaze, save in the character of the surface to which it is applied. Both are vitrified substances, either with or without color, and exhibiting every degree of translucency—some varieties being perfectly transparent, while others are completely opaque. Chemically they consist of easily-fusible salts, such as the silicates and borates of sodium, potassium, and lead, to which various metallic oxides are added when it is desired to impart color to the enamel.

To whatever period the origin of enameling may be assigned, it is certain that glazes having the composition of good enamels were manufactured at a very early date. Excellent glazes are still preserved on some of the bricks which have been found among the ruins of Babylonia and Assyria, and have been referred to the eighth or seventh century B.C. Nor should we forget the glazed slipper-shaped coffins which occur in great numbers at Warka, probably the ancient Ur of the Chaldees, and are referred to the Sassanian period. The glazes on the Babylonian bricks were examined by Doctor Percy, who found that the base was a soda-glass, or silicate of sodium, rendered opaque in some specimens by the presence of stannic oxide, or colored blue in others by means of silicate of copper associated with the sodic silicate, or exhibiting in other specimens a fine yellow color, due to the presence of antimony and lead, probably in the form of "Naples yellow." Glazes, of a

similar character to some of these, were also manufactured by the Egyptians as early as the Sixth Dynasty. Sepulchral figures, and a variety of other objects familiar to students of Egyptian art, were produced in a substance which has been miscalled "porcelain," and which is, in fact, a frit coated with variously-colored glazes, of which the most common is of a fine celestial blue color. This color is due to the presence of a double silicate of copper and sodium. Beautiful as these glazes unquestionably are, they are not true enamels, since they are not applied to metallic surfaces. It is true that the ancient Egyptians were able to produce an effect not unlike that of enameling by inlaying bronze and gold with colored pastes. But Doctor Birch says of the Egyptians that "their real enameling does not appear to be older than the time of the Ptolemaic and Roman dominion in Egypt."

There can be little doubt that the Greeks and Etruscans were acquainted with the art of enameling. They seem, however, to have practiced it to only a very limited extent, and it may be fairly doubted whether they had attained to such a mastery of its details as some writers have assumed.

Whatever knowledge of enameling the Greeks may at one time have possessed, they appear to have lost it before the third century of our era. This is inferred from a famous passage in Philostratus, which was probably written about 240 A.D. Philostratus was a Greek sophist who went from Athens to the court of Julia, the wife of Septimius Severus. The passage is found in the *Icones*, and since attention was first called to it by Buonarroti, it has been quoted by all writers on enameling; it is, in fact, the earliest distinct reference to the art. "It is said that the barbarians who inhabit the ocean pour these colors," alluding to the colored decorations of some horse-trappings, "on to heated bronze, and that they adhere, become as hard as stone, and preserve the designs." On this passage the learned commentator Olearius remarks, "Celtas intelligit per barbaros in Oceano."

In the Italian process, the enamels were always more or less translucent, and completely covered the metal ground, the design being defined by sculpturing beneath the transparent medium. The enamels were of various colors, and differences of shade were obtained by the varying thickness of the glass in different parts of the design. Gold or silver was the metal generally employed. The subject was chased in very low relief, and covered with powdered enamels. Great care was required during firing, to prevent the several colors running together in a confused mass.

Soon after the introduction of transparent enameling in Italy, the art became popular in France, and this probably led the way to the invention of *enamel-painting*. The artists of Limoges acquired great celebrity in this work. The early painted enamels from the Limousin workshops were executed in opaque white upon a brown ground, the white being overlaid, where necessary, by transparent colored enamels. The lights were picked out in gold, while the brilliant effect of gems was obtained by the use of *pailettes*, or colored foils. Nardon Pénicaud is the best known artist in this style, and an excellent example of his work, dated 1503, is preserved in the Hôtel de Cluay in Paris.

About the beginning of the sixteenth century a much more finished style of painting was introduced at Limoges; and under the auspices of Francis I. the art attained to a considerable development. Léonard Limousin, who is known to have painted from 1532 to 1574, became the great master of this style. While some of the works were executed in brilliant colors, most of them were in monochrome. The background

was generally dark, either black or deep purple, and the design was painted *en grisaille*, relieved in the case of figure-subjects by delicate carnations.

Toward the latter end of the sixteenth and in the beginning of the seventeenth century it was the fashion for the Limoges enamellers to paint in a minute style, which is seen in the works of the brothers Laudin and of the family of Nouailhers. The art at length degenerated into a system of tawdry coloring, and in the reign of Louis XIV. it fell into a state of decay, from which an attempt to revive it was made by Louis XVI., but without success.

Probably the decline of the Limoges school was connected with the rise of a new branch of enameling, which has been distinguished as the *miniature style*. This is the style which has continued in vogue up to the present day. Its invention is ascribed to Jean Toutin, a goldsmith of Châteaudun, but it was greatly improved by Jean Petitot of Geneva, who carried it to a high state of perfection, and painted for Charles I. in England and for Louis XIV. in France. These enamels are executed generally on plates of copper or of gold, but silver is sometimes employed.

ENCAUSTIC PAINTING. The name *encaustic* is applied to paintings executed with vehicles in which wax is the chief ingredient. The term was appropriately applied to the ancient methods of painting in wax, because these required heat to effect them. Wax, however, may now be used as a vehicle for painting without heat being requisite; nevertheless the ancient term *encaustic* has been retained, and is indiscriminately applied to all methods of painting in wax. The durability of wax, and its power of resisting the effects of the atmosphere, were well known to the Greeks, who used it for the protection of their sculptures. As a vehicle for painting it was commonly employed by them and by the Romans and Egyptians; but in recent times it has met with only a limited application. Of modern encaustic paintings those by Schnorr in the Residenz at Munich are the most important. At present there is no general agreement as to which is the best method of using wax for mural painting. Modern paintings in wax, in their chromatic range and in their general effect, occupy a middle place between those executed in oil and in fresco. Wax painting is not so easy as oil, but presents fewer technical difficulties than fresco.

ENCAUSTIC TILES. The term "encaustic" as applied to tiles is of modern though somewhat doubtful origin. The art bears no resemblance to the "encaustic painting" mentioned by Pliny and other ancient writers, although the expression (which signifies executed by fire) is perhaps as correctly applied to this manufacture as to the wax-incised pictures of the ancients. The term is, strictly speaking, applied to tiles which are decorated with patterns formed with different colored clays, inlaid in the tile, and fired with it. This art appears to have had its origin in the latter part of the twelfth century, but the culminating point of its excellence and popularity was attained during the thirteenth; and it was extensively used for the decoration of Gothic buildings in connection with each succeeding change in that style of architecture.

ENCHASING, or CHASING, is the art of producing figures and ornamental patterns, either raised or indented, on metallic surfaces by means of steel tools or punches. It is practiced extensively for the ornamentation of gold and silversmith work, electro-plate, and similar objects, being employed to produce bold flutings and bosses, and in another manner utilized for imitating engraved surfaces.

ENCINA, or ENZINA, JUAN DEL, the founder of the Spanish drama, was born in 1468 or 1469, either in the

city of Salamanca or more probably in the neighboring village of Encinas. In or about the year 1492—the year, that is, in which Columbus added the new world to the dominions of Spain—the poet began to entertain his patrons by the representation of comedies of his own composition, in which he sometimes played the part of the *Gracioso*, or buffoon. In 1496, under the title of *Cancionero*, he published a collection of nine dramatic and numerous lyrical poems, divided into four parts, dedicated respectively to their Catholic majesties, to the prince Don Juan, to the Dukes of Alba, and to Don Garcia de Toledo. Some years afterward he went to Rome, joined the clerical order, attracted the attention of Leo X., by his skill in music, and was appointed his *maestro di capella*. Great praise was bestowed by his contemporaries on a farce, *Placida e Victoriano*, published by him in 1514; but of the justness of their criticism we have no means of judging, since, owing in all probability to its insertion in the *Index Expurgatorius*, all copies of it have perished. In 1519 the poet went to Jerusalem in company with the Marquis of Tarifa, Don Fadrique Enriquez Alan de Riberon; but he was again in Rome about the middle of 1520, and in the following year published his *Trabagia o Via Sacra de Hierusalem*, a versified account of his journey, which has since been several times reprinted along with the marquis' narrative. Shortly afterward he was appointed prior of Leon, and returned to Spain. His death took place at Salamanca in 1534, and he was buried in the cathedral of that city.

ENCKE, JOHANN FRANZ, a celebrated astronomer, was born at Hamburg, on September 23, 1791. He received his early education from his father, who was a clergyman, and he afterward studied at the University of Göttingen, devoting himself specially to astronomy under the instruction of Professor Gauss. In 1813–14, he served in the Hanseatic legion in the war with Napoleon, and in 1815, he became a lieutenant of artillery in the Prussian service. When peace was concluded he resumed his astronomical studies at Göttingen until 1817, when he was appointed by Lindenau, the Saxon minister of state, to a post in the Observatory of Seeberg, near Gotha. In 1822–3, he published at Gotha two volumes, entitled *Die Entfernung der Sonne*, in which the various observations of the transits of Venus in 1761 and 1769 were carefully reconsidered, and the calculations verified and corrected. One of the earliest subjects to which his attention was directed was the determination of the orbit of the comet observed by Pons, at Marseilles, in November, 1818. He calculated the period of its recurrence at about three and a quarter years, and conjectured it to be the same comet that had appeared in 1786, 1795, and 1805. Upon the data he possessed he was able to predict its re-appearance in 1822, and he stated also that it would probably be invisible in Europe. His prediction was almost exactly verified, the comet being observed in New South Wales on June 3, 1822, and the time of its perihelion passage being within three hours of that which he had computed. From the elements supplied by this observation he was able to foretell more accurately its recurrences in 1825 and 1828, and after the latter of these he determined its exact orbit. After the observation of 1832, he determined the period of its revolution as 3.29 years, with a gradual acceleration which he ascribed to the existence of a resisting medium. The comet is known as Encke's comet. In 1825 Encke was appointed to succeed Bode as director of the Royal Observatory at Berlin, a situation which he filled with great ability until within a year of his death. In 1830 he became editor of the Berlin *Astronomisches Jahrbuch*, to which he contributed a large number of valuable papers. The observations taken under his direction at the Ber-

lin Observatory were recorded and published in a series of volumes, of which the first appeared in 1840. Of his many other contributions to astronomical literature may be mentioned his new method for computing perturbations, his dissertation *De Formulæ Dioptricis* (1845), and his work on the relation of astronomy to the other sciences, which was published in 1846. Encke was one of the foreign members of the Royal Society of London, and in 1840 he was created a knight by the King of Prussia. He died at Spandau, on September 2, 1865.

ENCYCLOPÆDIA. The Greeks seem to have understood by encyclopædia instruction in the whole circle or complete system of learning—education in arts and sciences. Thus Pliny, in the preface to his *Natural History*, says that his book treated of all the subjects of the encyclopædia of the Greeks, “*Jam omnia attingenda quæ Græci vocant.*” Quintilian directs that before boys are placed under the rhetorician they should be instructed in the other arts, “*ut efficiatur orbis ille doctrinæ quam Græci.*” The word encyclopædia was probably first used in English by Sir Thomas Elyot. “In an oratour is required to be a heape of all maner of lernyng: whiche of some is called the worlde of science, of other the circle of doctrine, whiche is in one worde of greke Encyclopædia.” In his Latin dictionary, 1538, he explains, “*Encyclios et Encyclia, the eykle or course of all doctrines,*” and “*Encyclopædia, that lernyng whiche comprehendeth all lyberall science and studies.*” The term does not seem to have been used as the title of a book by the ancients or in the Middle Ages. Paulus Scalichius de Lika, an Hungarian count, wrote *Encyclopædiæ seu Orbis Disciplinarum Epistemon*, Basilæ, 1599, 4to. Alsted published in 1608, *Encyclopædia Cursus Philosophici*, which he afterward expanded into his great work, first published in 1620, called without any limitation *Encyclopædia*, because it treats of everything that can be learned by man in this life. This is now the most usual sense in which the word encyclopædia is used—a book treating of all the various kinds of knowledge, and it has become in modern times the common title of such books. Cyclopædia was formerly sometimes used, but is now retained only in English, and is not merely without any appearance of classical authority, but is etymologically less definite, complete, and correct. For as *Cyropædia* means “the instruction of Cyrus,” so cyclopædia may mean “instruction of a circle.” Vossius says, “*Cyclopædia* is sometimes found, but the best writers say *encyclopædia*.” In a more restricted sense, *encyclopædia* means a system or classification of the various branches of knowledge, a subject on which many books have been published, especially in Germany, as Schmid’s *Allgemeine Encyclopædie und Methodologie der Wissenschaften*, Jena, 1810. In this sense the *Novum Organum*, of Bacon, has often been called an encyclopædia. But it is “a grammar only of the sciences: a cyclopædia is not a grammar, but a dictionary, and to confuse the meanings of grammar and dictionary is to lose the benefit of a distinction which it is fortunate that terms have been coined to convey.” Fortunius Licetus, an Italian physician, entitled several of his dissertations on Roman altars and other antiquities *encyclopædias*, because in composing them he borrowed the aid of all the sciences. The *Encyclopædia Moralis*, of Marcellinus de Pise, Paris, 1646, is a series of sermons. *Encyclopædia* is often used to mean a book which is, or professes to be, a complete or very full collection or treatise relating to some particular subject.

The most ancient encyclopædia extant is Pliny’s *Natural History* in thirty-seven books (including the preface) and 2,493 chapters, which may be thus described generally: book one, preface; book two, cosmography, astronomy, and meteorology; books three

to six, geography; books seven to eleven, zoölogy, including man, and the invention of the arts; books twelve to nineteen, botany; books twenty to thirty-two, medicines, vegetable and animal remedies, medical authors, and magic; books thirty-three to thirty-seven, metals, fine arts, mineralogy, and mineral remedies. Pliny, who died 79 A.D., was not a naturalist, a physician, or an artist, and collected his work in his leisure intervals while engaged in public affairs. He says it contains 20,000 facts (too small a number by half, says Lemaire), collected from 2,000 books by 100 authors. Hardouin has given a list of 464 authors quoted by him. His work was a very high authority in the Middle Ages, and forty-three editions of it were printed before 1536.

Martianus Minæus Felix Capella, an African, who wrote about 470, in mingled verse and prose, a sort of encyclopædia, which is important from having been regarded in the Middle Ages as a model storehouse of learning, and used in the schools, where the scholars had to learn the verses by heart, as a text-book of high class education in the arts. It is sometimes entitled *Satyra*, or *Satyricon*, but is usually known as *De Nuptiis Philologie et Mercurii*, though this title is sometimes confined to the first two books, or rather confused allegory, ending with the apotheosis of Philologia and the celebration of her marriage in the milky way, where Apollo presents to her the seven liberal arts, who, in the succeeding seven books, describe their respective branches of knowledge, namely, grammar, dialectics (divided into metaphysics and logic), rhetoric, geometry (geography, with some single geometrical propositions), arithmetic (chiefly the properties of numbers), astronomy, and music (including poetry). The style is that of an African of the fifth century, full of grandiloquence, metaphors, and strange words. He seldom mentions his authorities, and sometimes quotes authors whom he does not at all seem to have read. His work was frequently copied in the Middle Ages by ignorant transcribers, and was eight times printed from 1499 to 1599.

The author of the greatest encyclopædia of the Middle Ages, Vincentius Bellovacensis, or Belvacensis, most probably a native of Beauvais or of the Beauvaisis, was a Dominican friar, called by Louis IX. of France, on his founding Royaumont, a Cistercian monastery, in 1228, to fill the office of lector. He seems also to have been royal librarian, and Louis IX. paid for copying and buying many books for him. Fifteen different dates, from 1240 to 1334, have been proposed for his death, but the most probable and the best supported by evidence seems to be 1264. His great work, called *Bibliotheca Mundi*, or *Speculum Majus*, quadruplex, or triplex, is only the third part of what he had prepared and abridged “ad fratrū preces et consilium prelati.” The edition of 1624 contains 4,327 folio pages of very small type. That the work excited great attention, and was much used at all times, is proved by the great number of MSS. in all libraries, of which nearly eighty have been described, though no general notice of them has been published. In his prologue or general preface, which is prefixed to each of the three genuine parts, he says it is called *Speculum* because it briefly contains almost everything he could collect from innumerable books which is worthy of speculation, that is, of admiration or imitation, done or said in the visible and invisible world from the beginning to the end, and even future things. He was so anxious that the names of the authors quoted should not be lost or transposed in copying that he wrote them, not on the margin, but in the text itself; therefore Thonasius (*De Plagio*, 542-75) acquits him of plagiarism, because he represents his work as a collection, and acknowledges all quotations.

Johann Jacob Hofmann, born September 11, 1635; died March 10, 1706, son of a schoolmaster at Basle, which he is said never to have left, and where he was professor of Greek and History, wrote a dictionary of history, biography, geography, genealogies of princely families, chronology, mythology, and philology.

The great dictionary of French, begun by the French Academy February 7, 1639, excluded all words especially belonging to science and the arts. But the success of the rival dictionary of Furetière, which, as its title page, as well as that of the *Essais* published in 1684, conspicuously announced, professed to give "les termes de toutes les Sciences et des Arts," induced Thomas Corneille, a member of the Academy, to compile *Le Dictionnaire des Arts et des Sciences*, which the Academy published with the first edition of their dictionary, Paris, 1694, folio, as a supplement in two volumes containing 1,236 pages. It was reprinted at Amsterdam, 1696, fol. 2 vols., and at Paris in 1720, and again in 1732, revised by Fontenelle. A long series of dictionaries of arts and sciences have followed Corneille in placing in their titles the arts before the sciences, which he probably did merely in order to differ from Furetière. Corneille professed to quote no author whom he had not consulted; to take plants from Dioscorides and Matthioli, medicine from Etmüller, chemistry from a MS. of Perrault, and architecture, painting, and sculpture from Félibien; and to give an abridged history of animals, birds, and fishes, and an account of all religious and military orders and their statutes, heresiarchs and heresies, and dignities and charges ancient and modern.

The first alphabetical encyclopædia written in English was the work of a London clergyman, John Harris (born about 1667, elected first secretary of the Royal Society November 30, 1709, died September 7, 1719), *Lexicon Technicum, or an Universal English Dictionary of Arts and Sciences*, London, 1704, fol. 1,220 pages, 4 plates, with many diagrams and figures printed in the text. Like many subsequent English encyclopædias, the pages are not numbered. It professes not merely to explain the terms used in the arts and sciences, but the arts and sciences themselves.

Ephraim Chambers published his *Cyclopædia, or an Universal Dictionary of Art and Sciences, Containing an Explication of the Terms and an Account of the Things Signified Thereby in the Several Arts, Liberal and Mechanical, and the Several Sciences, Human and Divine*, London, 1728, fol. 2 vols. The dedication to the king is dated October 15, 1727. Chambers endeavored to connect the scattered articles relating to each subject by a system of references, and to consider "the several matters, not only in themselves, but relatively, or as they respect each other; both to treat them as so many wholes and so many parts of some greater whole."

One of the largest and most comprehensive encyclopædias was undertaken, and in a great measure completed, by Johann Heinrich Zedler, a bookseller of Leipsic, who was born at Breslau January 7, 1706, made a Prussian commerzienrath in 1731, and died at Leipsic in 1760.

One of the greatest and most remarkable literary enterprises of the eighteenth century, the famous French *Encyclopédie*, originated in a French translation of Chambers' *Cyclopædia*, begun in 1743, and finished in 1745 by John Mills, an Englishman resident in France, assisted by Gottfried Sellius, a very learned native of Dantzic, who, after being a professor at Halle and Göttingen, and residing in Holland, had settled in Paris. They applied to Lebreton, the king's printer, to publish the work, to fulfill the formalities required by French law, with which, as foreigners, they were not acquainted,

and to solicit a royal privilege. This he obtained, but in his own name alone. Mills complained so loudly and bitterly of this deception that Lebreton had to acknowledge formally that the privilege belonged *en toute propriété* to John Mills. But, as he again took care not to acquaint Mills with the necessary legal formalities, this title soon became invalid. Mills then agreed to grant him part of his privilege, and in May, 1745, the work was announced as *Encyclopédie ou Dictionnaire Universel des Arts et des Sciences*, folio, four volumes of 250 to 260 sheets each, with a fifth of at least 120 plates, and a vocabulary or list of articles in French, Latin, German, Italian, and Spanish, with other lists for each language explained in French, so that foreigners might easily find any article wanted. It was to be published by subscription at 135 livres, but for large paper copies 200 livres, the first volume to be delivered in June, 1746, and the two last at the end of 1748. The subscription list, which was considerable, closed December 31, 1745. Mills demanded an account, which Lebreton, who had again omitted certain formalities, insultingly refused. Mills brought an action against him, but before it was decided Lebreton procured the revocation of the privilege as informal, and obtained another for himself dated January 21, 1746. Thus, for unwittingly contravening regulations with which his unscrupulous publisher ought to have made him acquainted, Mills was despoiled of the work he had both planned and executed, and had to return to England. Jean Paul de Gua de Malves, professor of philosophy in the College of France (born at Carcassonne in 1713, died June 15, 1785), was then engaged as editor merely to correct errors and add new discoveries. But he proposed a thorough revision, and obtained the assistance of many learned men and artists, among whom Des-sarts names Louis, Condillac, D'Alembert, and Diderot. But the publishers did not think his reputation high enough to ensure success, withheld their confidence, and often opposed his plans as too expensive. Tired at last of disputes, and too easily offended, De Gua resigned the editorship. The publishers, who had already made heavy advances, offered it to Diderot (born October 7, 1713, died July 30, 1784), who was probably recommended to them by his very well received *Dictionnaire Universel de Médecine*, Paris, 1746-48, fol. 6 vols., published by Braisson, David, and Durand, with notes and additions by Julien Buisson, doctor regent of the faculty of medicine of Paris. It was a translation, made with the assistance of Eidous and Toussaint, of the celebrated work of Dr. Robert James, inventor of the fever powders, *A Medicinal Dictionary*, London, 1743-45, fol. 3 vols., 3,275 pages and 98 plates, comprising a history of drugs, with chemistry, botany, and natural history so far as they relate to medicine, and with a historical preface of ninety-nine pages (in the translation 136). The proposed work was to have been similar in character. De Gua's papers were handed over to Diderot in great confusion. He soon persuaded the publishers to undertake a far more original and comprehensive work. His friend D'Alembert undertook to edit the mathematics. Other subjects were allotted to twenty-one contributors, each of whom received the articles on this subject in Mill's translation to serve as a basis for his work. But they were in most cases so badly composed and translated, so full of errors and omissions, that they were not used. The contributions were to be finished in three months, but none were ready in time, except Music, by Rousseau, which he admits was hastily and badly done. Diderot was imprisoned at Vincennes, July 29, 1749, for his *Lettre sur les Aveugles*. He was closely confined for twenty-eight days, and was then for three months and

ten days a prisoner on parole in the castle. This did not stop the printing, though it caused delay. The prospectus by Diderot appeared in November, 1750. The work was to form eight volumes, folio, with at least 600 plates. The first volume was published in July, 1751, and delivered to the subscribers in August. The second appeared in January, 1752. An *arrêt* of the council, February 9th, suppressed both volumes as injurious to the king's authority and to religion. Malesherbes, director-general of the Librairie, stopped the issue of volume ii, February 9th, and on the 21st went with a *lettre de cachet* to Lebreton to seize the plates and the MSS., but did not find, says Barbier, even those of volume iii, as they had been taken to his own house by Diderot and one of the publishers. The Jesuits tried to continue the work, but in vain. It was less easy, says Grimm, than to ruin philosophers. The *Dictionnaire de Trévoux* pronounced the completion of the *Encyclopédie* impossible, and the project ridiculous (5th edition, 1752, iii, 750). The government had to request the editors to resume the work as one honorable to the nation. The Marquis d'Argenson writes, May 7, 1752, that Mme. de Pompadour had been urging them to proceed, and at the end of June he reports them again at work. Volume iii, rather improved by the delay, appeared in October, 1753; and volume vii, completing G, in November, 1757. The clamors against the work soon recommenced. D'Alembert retired in January, 1758, weary of sermons, satires, and intolerant and absurd censors. The Parliament of Paris, by an *arrêt*, January 23, 1759, stopped the sale and distribution of the *Encyclopédie*, Helvetius' *De l'Esprit*, and six other books; and by an *arrêt*, February 6th, ordered them all to be burnt, but referred the *Encyclopédie* for examination to a commission of nine. An *arrêt de conseil*, March 7th, revoked the privilege of 1746, and stopped the printing. Volume viii was then in the press. Malesherbes warned Diderot that he would have his papers seized next day; and when Diderot said he could not make a selection, or find a place of safety at such short notice, Malesherbes said: "Send them to me, they will not look for them there." This, according to Mme. de Vandeul, Diderot's daughter, was done with perfect success. In the article Pardonner, Diderot refers to these persecutions, and says, "In the space of some months we have seen our honor, fortune, liberty, and life imperiled." Malesherbes, Choiseul, and Mme. de Pompadour protected the work; Diderot obtained private permission to go on printing, but with a strict charge not to publish any part until the whole was finished. The Jesuits were condemned by the Parliament of Paris in 1762, and by the king in November, 1764. Volume i. of plates appeared in 1762, and volumes viii to xvii, ten volumes of text, 9,408 pages, completing the work, with the fourth volume of plates in 1765, when there were 4,250 subscribers. The work circulated freely in the provinces and in foreign countries, and was secretly distributed in Paris and Versailles. The general assembly of the clergy, on June 20, 1765, approved articles in which it was condemned, and on September 27th, adopted a *mémoire* to be presented to the king. They were forbidden to publish their acts which favored the Jesuits, but Lebreton was required to give a list of his subscribers, and was put into the Bastille for eight days in 1766. A royal order was sent to the subscribers to deliver their copies to the lieutenant of police. Voltaire, in 1774, relates that, at a *petit souper* of the king at Trianon, there was a debate on the composition of gunpowder. Mme. de Pompadour said she did not know how her rouge or her silk stockings were made. The Duc de la Vallière regretted that the king had confiscated their encyclopædias, which could

decide everything. The king said he had been told that the work was most dangerous, but as he wished to judge for himself, he sent for a copy. Three servants, with difficulty, brought in the twenty-one volumes. The company found everything they looked for, and the king allowed the confiscated copies to be returned. Mme. de Pompadour died April 15, 1764. Lebreton had half of the property in the work, and Durand, David, and Briasson had the rest. Lebreton, who had the largest printing office in Paris, employed fifty workmen in printing the last ten volumes. He had the articles set in type exactly as the authors sent them in, and when Diderot had corrected the last proof of each sheet, he and his foreman, hastily, secretly, and by night, unknown to his partners in the work, cut out whatever seemed to them daring, or likely to give offense, mutilated most of the best articles without any regard to the consecutiveness of what was left, and burnt the manuscript as they proceeded. The printing of the work was nearly finished when Diderot, having to consult one of his great philosophical articles in the letter S, found it entirely mutilated. He was confounded, says Grimm, at discovering the atrocity of the printer; all the best articles were in the same confusion. This discovery put him into a state of frenzy and despair from rage and grief. His daughter never heard him speak coolly on the subject, and after twenty years it still made him angry. He believed that every one knew as well as he did what was wanting in each article, but in fact the mutilation was not perceived even by the authors, and for many years was known to few persons. Diderot at first refused to correct the remaining proofs, or to do more than write the explanations of the plates. He required, according to Mme. de Vandeul, that a copy, now at St. Petersburg with his library, should be printed with columns in which all was restored. The mutilations began as far back as the article Intendant. But how far, says Rosenkrantz, this murderous, incredible, and infamous operation was carried cannot now be exactly ascertained. Diderot's articles, not including those on arts and trades, were reprinted in Naigeon's edition (Paris, 1821, 8vo, 22 vols.) They fill 4,132 pages, and number 1,139, of which 601 were written for the last ten volumes. They are on very many subjects, but principally on grammar, history, morality, philosophy, literature, and metaphysics. As a contributor, his special department of the work was philosophy, and arts and trades. He passed whole days in workshops, and began by examining a machine carefully, then he had it taken to pieces and put together again, then he watched it at work, and lastly worked it himself. He thus learned to use such complicated machines as the stocking and cut velvet looms. He at first received 1,200 livres a year as editor, but afterward 2,500 livres a volume, besides a final sum of 20,000 livres. Although after his engagement he did not suffer from poverty as he had done before, he was obliged to sell his library in order to provide for his daughter. De Jaucourt spared neither time, trouble, nor expense in perfecting the work, for which he received nothing, and he employed several secretaries at it for ten years. To pay them he had to sell his house in Paris, which Lebreton bought with the profits derived from De Jaucourt's work. All the publishers made large fortunes; their expenses amounted to 1,158,000 livres, and their profits to 2,162,000. D'Alembert's *Discours Preliminaires*, forty-five pages, written in 1750, prefixed to the first volume, and delivered before the French Academy on his reception, December 19, 1754, consists of a systematic arrangement of the various branches of knowledge, and an account of their progress since their revival. His system, chiefly taken from Bacon,

divides them into three classes—under memory, reason, and imagination. Arts and trades are placed under natural history, superstition and magic under science de Dieu, and orthography and heraldry under logic. The literary world is divided into three corresponding classes—*érudits*, *philosophes*, and *beaux esprits*. As in Chambers' *Cyclopædia*, history and biography were excluded, except incidentally; thus Aristotle's life is given in the article *Aristotleisme*. The science to which an article belongs is generally named at the beginning of it, references are given to other articles, and the author's names are marked by initials, of which lists are given in the earlier volumes, but sometimes their names are subscribed in full. Articles by Diderot have no mark, and those inserted by him as editor have an asterisk prefixed. Among the contributors were Voltaire, Euler, Marmontel, Montesquieu, D'Anville, D'Holbach, and Turgot, the leader of the new school of economists which made its first appearance in the pages of the *Encyclopédie*. Louis wrote the surgery, Daubenton natural history, Eidous heraldry and art, Toussaint jurisprudence, and Condamine articles on South America. No encyclopædia perhaps has been of such political importance, or has occupied so conspicuous a place in the civil and literary history of its century. It sought not only to give information, but to guide opinion. It was, as Rosenkranz says, theistic and heretical. It was opposed to the church, then all powerful in France, and it treated dogma historically. It was, as Desnoiresterres says, a war machine; as it progressed, its attacks both on the Church and the still more despotic government, as well as on Christianity itself, became bolder and more undisguised, and it was met by opposition and persecution unparalleled in the history of encyclopædias. Its execution is very unequal, and its articles of very different value.

It was not constructed on a regular plan, or subjected to sufficient supervision; articles were sent in by contributors, and not seen by the editors until they were in type. In each subject there are some excellent articles, but others are very inferior or altogether omitted, and references are often given to articles which do not exist. Thus marine is said to be more than three-fourths deficient; and in geography errors and omissions abound—even capitals and sovereign states are overlooked, while villages are given as towns, and towns are described which never existed. The style is too generally loose, digressive, and inexact; dates are seldom given; and discursiveness, verbosity, and dogmatism are frequent faults. Voltaire was constantly demanding truth, brevity, and method, and said it was built half of marble and half of wood. D'Alembert compared it to a harlequin's coat, in which there is some good stuff but too many rags. Diderot was dissatisfied with it as a whole; much of it was compiled in haste; and carelessly written articles and incompetent contributors were admitted for want of money to pay good writers. Zedler's *Universal Lexicon* is now on the whole much more useful for reference than its far more brilliant successor. The permanent value of encyclopædias depends on the proportion of exact and precise facts they contain, and on their systematic regularity.

The first edition of the *Encyclopédie*, in seventeen vols. folio, 16,288 pages, was imitated by a counterfeit edition printed at Geneva as the volumes appeared in Paris. Eleven folio volumes of plates were published at Paris, 1762 to 1772, containing 2,888 plates and 923 pages of explanation, etc. A supplement was printed at Amsterdam and Paris, 1776–77, fol. five vols., 3,874 pages, with 224 plates. History was introduced at the wish of the public, but only "the general features which mark epochs in the annals of the world." The astronomy

was by Delalande, mathematics by Condorcet, tables by Bernouilli, natural history by Adanson, anatomy and physiology by Haller. Daubenton, Condamine, Marmontel, and other old contributors wrote many articles, and several were taken from foreign editions. A very full and elaborate index of the articles and subjects of the thirty-three volumes was printed at Amsterdam in 1780, fol. two vols., 1,852 pages. It was made by Pierre Mouchon, who was born at Geneva, July 30, 1735, consecrated minister August 18, 1758, pastor of the French church at Basle, 1766, elected a pastor in Geneva, March 6, 1788, principal of the college there, April 22, 1791, died August 20, 1797. This *Table Analytique*, which took him five years to make, was undertaken for the publishers Cramer and De Tournes, who gave him 800 louis for it. Though very exact and full, he designedly omits the attacks on Christianity. This index was rendered more useful and indispensable by the very diffuse and digressive style of the work, and by the vast number of its articles. A complete copy of the first edition of the *Encyclopédie* consists of thirty-five vols. fol., printed 1751–80, containing 23,135 pages and 3,132 plates. It was written by about 160 contributors. About 1761, Panckoucke and other publishers in Paris proposed a new and revised edition, and bought the plates for 250,000 livres. But, as Diderot indignantly refused to edit what he considered a fraud on the subscribers to the as yet unfinished work, they began simply to reprint the work, promising supplementary volumes. When three volumes were printed the whole was seized in 1770 by the Government at the complaint of the clergy, and was lodged in the Bastille. The plan of a second French edition was laid aside then, to be revived twenty years later in a very different form. Foreign editions of the *Encyclopédie* are numerous, and it is difficult to enumerate them correctly.

The *Encyclopedia Britannica*, "by a society of gentlemen in Scotland, printed in Edinburgh for A. Bell and C. Macfarquhar, and sold by Colin Macfarquhar at his printing office in Nicolson Street," was completed in 1771 in 3 volumes 4to, containing 2,670 pages, and 160 copperplates engraved by Andrew Bell. It was published in numbers of which the two first were issued in December, 1768, "price 6d. each, or 8d. on finer paper," and was to be completed in 100 weekly numbers.

The second edition was begun in 1776, and was published in numbers, of which the first was issued June 21, 1777, and the last, No. 181, September 18, 1784.

The supplement of the third edition, printed for Thomson Bonar, and edited by Gleig, was published in 1801.

The fourth edition, printed for Andrew Bell, was begun in 1800 or 1801, and finished in 1810.

No encyclopædia has been more useful and successful, or more frequently copied, imitated, and translated, than that known as the *Conversations Lexicon* of Brockhaus. It was begun at Leipzig, 1796, by Dr. Gotthelf Renatus Löbel (born April 1, 1767 at Thälwitz near Wurzen in Saxony, died February 14, 1799). Vols. i–iv (A to R) appeared 1796 to 1800, vol. v in 1806. Friedrich Arnold Brockhaus (born at Dortmund, May 4, 1772, settled at Amsterdam in 1801–2, where he opened a German bookseller's shop, October 15, 1805, as Rehloff and Co., Dutch law not allowing him to use his own name) bought the work with its copyright, October 25, 1808, for 1,800 thalers from the printer, who seems to have got it in payment for his bill. The editor, Christian Wilhelm Franke, by contract dated November 16th, was to finish vol. vi by December 5th, and the already projected supplement, 2 vols., by Michaelmas, 1809, for eight thalers a printed sheet. No penalty was

specified, but, says his grandson, Brockhaus was to learn that such contracts, whether under penalty or not, are not kept, for the supplement was finished only in 1811. Brockhaus issued a new impression as *Conversations Lexikon oder Kurzgefasstes Handwörterbuch*, etc., 1809-11, and on removing to Altenburg in 1811 began himself to edit the 2d edition (1812-19, 10 vols.), and, when vol. iv. was published, the 3d (1814-19). He carried on both editions together until 1817, when he removed to Leipzig, and began the 4th edition as *Allgemeine Deutsche Real Encyclopädie für die Gebildeten Stände. Conversations Lexikon*. This double title has ever since been retained.

The most copious German encyclopædia is Ersch and Gruber's *Allgemeine Encyclopädie der Wissenschaften und Künste*, Leipzig, 1818-75, 151 vols.

The very excellent and useful *English Cyclopædia* (London, 1854-62, 4to, 23 vols., supplements, 1869-73, 4 vols.), conducted by Charles Knight, based on the *Penny Cyclopædia* (London 1833-46, 4to, 29 vols.), of which he had the copyright, is in four divisions, all alphabetical.

Chambers' Encyclopædia (Edinburgh, W. and R. Chambers), 1860-68, 8vo, 10 vols., edited in part by the publishers, but under the charge of Dr. Andrew Findlater, as "acting editor" throughout, was founded on the 10th edition of Brockhaus. A revised edition appeared in 1874. In the list of 126 contributors are J. H. Burton, Emmanuel Deutsch, Professor Goldstücker, etc. The index of matters not having special articles contains about 1,500 headings. The articles are generally excellent, more especially on Jewish literature, folk-lore, and practical science; but as in Brockhaus the scope of the work does not allow extended treatment.

The New American Cyclopædia, New York (Appleton & Co.), 1858-63, 16 vols., is the work of the editors, George Kiple and Charles Anderson Dana, and 364 contributors, chiefly American. A supplementary work, *The American Annual Cyclopædia*, a yearly 8vo vol. of about 800 pages and 250 articles, has been published since 1861.

ENDIVE, an annual esculent plant, commonly reputed to have been introduced into Europe from the East Indies, but, according to some authorities, more probably indigenous to Egypt. There are numerous varieties of the endive, forming two groups, namely, the curled or narrow-leaved, and the Batavian or broad-leaved, the leaves of which are not curled. The former varieties are those most used for salads, the latter being grown chiefly for culinary purposes.

ENDOR, an ancient town of Palestine, originally belonging to the Philistines, and chiefly memorable as the abode of the sorcerer whom Saul consulted on the eve of the battle of Gilboa, in which he perished.

ENDYMION. In the genealogy of the Iapetids Endymion is said to be the son of Aethlius, who is the son of Zeus by Protogeneia, the daughter of Deucalion and Pyrrha. The legend of Endymion was localized in Elis, the westernmost land in the Peloponnesus, where his tomb was shown in the days of Pausanias. The simplest form of the story is perhaps that of Apollodorus, who merely says that Selene (the moon) loved him, and that Zeus left him free to choose anything that he might desire, his choice being an everlasting sleep, in which he might remain youthful for ever. This is simply a reversing of the myth of Eos (the morning), who forgot to ask eternal youth for her husband Tithonus, whose decrepit form she was glad to hide in a cave. In other versions Endymion is a beautiful youth, whom Selene visits while he lies asleep in the cave of Latmus. She thus becomes the mother of his fifty daughters, who have been supposed by Preller to denote the fifty moons

of the Olympian festal cycle, but who in their number must be compared with the fifty sons or daughters of Ægyptus, Danaüs, or Priam.

ENERGY may be defined as the power of doing work, or of overcoming resistance. A bent spring possesses energy, for it is capable of doing work in returning to its natural form; a charge of gunpowder possesses energy, for it is capable of doing work in exploding; a Leyden jar charged with electricity possesses energy, for it is capable of doing work in being discharged. A complete account of our knowledge of energy and its transformations would require an exhaustive treatise on every branch of physical science, for natural philosophy is simply the science of energy. Energy is the capacity for doing work. The unit of energy should therefore be the same as that of work.

The forms of energy which are most readily recognized are, of course, those in which the energy can be most readily employed in doing mechanical work, and it is manifest that masses of matter which are large enough to be seen and handled are more readily dealt with mechanically than are smaller masses. Hence when useful work can be obtained from a system by simply connecting visible portions of it by a train of mechanism, such energy is more readily recognized than is that which compels us to control the behavior of molecules before we can transform it into useful work. The former is sometimes, though very improperly, called visible energy, because its transformation is always accompanied by a visible change in the system itself.

The conception of work and of energy was originally derived from observation of purely mechanical phenomena, that is to say, phenomena in which the relative positions and motions of visible portions of matter were all that were taken into consideration. Hence it is not surprising that, in those more subtle forms in which energy cannot be so readily converted into work, it should for a long while have escaped recognition after it had become familiar to the student of dynamics.

If a pound weight be suspended by a string passing over a pulley, in descending through ten feet it is capable of raising nearly a pound weight, attached to the other end of the string, through the same height, and thus can do nearly ten foot-pounds of work. The smoother we make the pulley the more nearly does the amount of useful work which the weight is capable of doing approach ten foot-pounds, and if we take into account the work done against the friction of the pulley, we may say that the work done by the descending weight is ten foot-pounds, and hence when the weight is in its elevated position we have at disposal ten foot-pounds more energy than when it is in the lower position. It should be noticed, however, that this energy is possessed by the system consisting of the earth and pound together, in virtue of their separation, and that neither could do work without the other to attract it. The system consisting of the earth and the pound, therefore, possesses an amount of energy which depends on the relative positions of its two parts, and the stresses existing between. In most mechanical systems the stresses acting between the parts can be determined when the relative positions of all the parts are known; and the energy which a system possesses in virtue of the relative positions of its parts, or its *configuration*, is called its "Potential Energy," to distinguish it from another form of energy which we shall presently consider. The word potential does not imply that this energy is not real and exists only in potentiality; it is energy and has as much claim to the title as it has in any other form in which it may appear.

A good example of the transformation of kinetic energy into potential energy, and *vice versa*, is seen in

the pendulum. When at the limits of its swing, the pendulum is for an instant at rest, and all the energy of the oscillation is potential. When passing through its position of equilibrium, since gravity can do no more work upon it without changing its fixed point of support, all the energy of oscillation is kinetic. At intermediate positions the energy is partly kinetic and partly potential.

Kinetic energy is possessed by a system of two or more bodies in virtue of the relative motion of its parts. Since our conception of velocity is essentially relative, and we know nothing about absolute velocities in space, it is plain that any property possessed by a body in virtue of its motion can be possessed by it only in relation to those bodies with respect to which it is moving, and thus a single rigid body can never be said to possess kinetic energy in virtue of the motion of its center of mass.

It is only when a body possesses no motion of rotation that we may speak of its velocity as a whole. If a body be rotating about an axis, it follows from D'Alembert's principle that the work it is capable of doing while being brought to rest is the same as if each particle were perfectly free and moving with the velocity which it actually possesses.

When the stresses acting between the parts of a system depend *only* on the relative positions of those parts, the sum of the kinetic energy and potential energy of the system is always the same, provided the system be not acted upon by anything without it. Such a system is called *conservative*, and is well illustrated by the swinging pendulum above referred to. But there are some stresses the *direction* of whose action depends on that of the relative *motion* of the visible bodies between which they appear to act, while there are others whose *magnitude* also depends on the relative velocities of the bodies. When work is done against these forces no equivalent of potential energy is produced, at least in the form in which we have been accustomed to recognize it, for if the motion of the system be reversed the forces will be also reversed and will still oppose the motion. It was long believed that work done against such forces was lost, and it was not till the present century that the energy thus transformed was traced, and the principle of conservation of energy established on a sound physical basis.

It is sometimes important to consider the rate at which energy may be transformed into useful work, or the horse-power of the agent. It generally happens to obtain the greatest possible amount of work from a given supply of energy, and to obtain it at the greatest rate, are conflicting interests. We have seen that the *efficiency* of an electromagnetic engine is greatest when the current is indefinitely small, and then the rate at which it works is also indefinitely small. Jacobi showed that for a given electromotive force in the battery the horse-power is greatest when the current is reduced to one-half of what it would be if the engine were at rest. A similar condition obtains in the steam-engine, in which a great rate of working necessitates the dissipation of a large amount of energy through the resistance of the steam-pipes, etc. The only way to secure a high degree of efficiency with a great horse-power in the case of a steam-engine, is by increasing the section of the steam-pipes and the areas of the steam ports. The efficiency of an electromagnetic engine cannot be greater than one-half when it is working at its maximum horse-power, but we may obtain any fixed rate of working we please with a given degree of efficiency by diminishing the resistance of the battery and conductors until the maximum horse-power of the engine exceeds that at which it is to be worked by a sufficient amount.

ENFANTIN, BARTHÉLEMY PROSPER [LE PÈRE

ENFANTIN], one of the founders of Saint-Simonism, was born at Paris, February 8, 1796. He was the son of a banker of Dauphiny, and after receiving his early education at a lyceum, was sent in 1813 to the École Polytechnique. In March, 1814, he was one of the band of students who, on the heights of Montmartre and Saint-Chaumont, attempted resistance to the armies of the allies then engaged in the investment of Paris. In consequence of this outbreak of patriotic enthusiasm, the school was soon after closed by Louis XVIII., and the young student was compelled to seek some other career instead of that of the soldier. He first engaged himself to a country wine-merchant, for whom he traveled in Germany, Russia, and the Netherlands. In 1821 he entered a banking-house newly established at St. Petersburg, but returned two years later to Paris, where he was appointed cashier to the Caisse Hypothécaire. At the same time he became a member of the secret society of the Carbonari. In 1825 a new turn was given to his thoughts and his life by the friendship which he formed with Olinde Rodriguez, the favored disciple of Saint-Simon. Introduced by Rodriguez to the master, who was then near his end, he ardently embraced his doctrines and schemes of social, political, and religious reformation. With Rodriguez he received the last instructions of Saint-Simon, and the two were intrusted with the propagation and development of his system. Their first step was the establishment of a journal, entitled *Le Producteur*, and of a limited liability company for its support. This journal had for its motto "The Golden Age, hitherto placed by blind tradition in the past, is before us." Enfantin contributed largely to its pages; and setting forth in it not only the doctrines of his master, but also new views of his own, he gave offense to some of his supporters, and in the course of 1826 the journal was discontinued. He had now become known, and had found influential adherents in some members of the Liberal party, among them Blanqui, Bazard, Duveyrier, Pereire, Auguste Comte, Michael Chevalier, and Pierre Leroux. Father Enfantin held fast by his ideal to the end, but he had renounced the hope of giving it a local habitation and a name in the degenerate obstinate world. His personal influence over those who associated with him was immense. "He was a man of a noble presence, with finely formed and expressive features. He was gentle and insinuating in manner, and possessed a calm, graceful, and winning delivery." His evident sincerity, his genuine enthusiasm, gave him his marvelous ascendancy. Not a few of his disciples have since ranked among the most distinguished men of France. He died suddenly at Paris, September 1, 1864.

ENFIELD, a market-town in Middlesex, is situated ten miles northeast of London. A large number of its inhabitants are employed in the royal small arms factory at Engled Lock, where the rifle now manufactured, however, is not the "Enfield," but the Martini-Henry.

ENFIELD, a manufacturing town of Hartford county, Conn., situated on the Connecticut River, fourteen miles north of Hartford. It has several factories and extensive powder-mills.

ENFIELD, WILLIAM, a dissenting divine, noted for the number and variety of his literary works, was born at Sudbury in 1741. He was chosen pastor of the dissenting (Unitarian) congregation of Octagon Street, Norwich, where he remained till his death, which took place Nov. 3, 1797, in the fifty-seventh year of his age.

ENGADINE, the valley of the Inn from its source to the Austrian frontier at Martinsbruck, a distance (by road) of about sixty-five miles. It is divided politically into two districts, the Upper and Lower Engadine, and four circles, which form part of the Gotteshansbund, one

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of the three leagues comprised in the canton Graubünden. Of late years the sudden influx of strangers has changed the picturesque villages into groups of hotels, and diverted the inhabitants from their former pursuits. The iron springs of St. Moritz, the cause and center of the immigration of summer visitors from all parts of Europe, have been known since the sixteenth century. They had been steadily resorted to by Germans and Italians since the days of Paracelsus, though it was not till the present century that any bath-house was erected for the convenience of the guests, who found sufficient accommodation in the village. The waters are highly charged with alkaline salts and carbonate of iron, with a small proportion of phosphoric acid, and traces of iodine, bromine, etc. Their influence, in combination with mountain air, is extremely beneficial in cases requiring strong tonic treatment.

ENGEL, JOHANNA JAKOB, a German writer, chiefly distinguished as a dramatist, was born at Parchim, in Mecklenburg, on September 11, 1741. Besides numerous dramas, some of which had a considerable success, Engel was the author of several works on æsthetical subjects.

ENGELBRECHTSDATTER, DORTHE, a Norwegian poetess, who enjoyed a very wide reputation throughout Scandinavia and over Germany during the first half of the eighteenth century. She was born at Bergen, in January, 1634; her father, Engelbrecht Jørgensen, was originally rector of the high school in that city, and afterward dean of the cathedral. She died, aged eighty-two, in 1716. The first verses of Dorthel Engelbrechtsdatter are the best; her *Sangoffer* was dedicated to Jesus, the *Tuarcoffer* to Queen Charlotte Amalia; the change is significant of her different position in the eyes of the world. She is, all through, a dull and tiresome writer, but her immense fame among her contemporaries, and her merit as one of the earliest writers of verse in modern Norway, gave her a position in literature.

ENGHIEN, LOUIS-ANTOINE-HENRI DE BOURBON-CONDE DUC D', was the son of Henri-Louis-Joseph, Prince of Condé, and of Louise-Marie-Thérèse Bathilde d'Orleans, and was born at Chantilly on August, 2, 1772. He was educated privately by the Abbé Millot, and was trained in the art of war by his grandfather, the Prince of Condé, with whom he was present at the battle of St. Omer in 1788. In 1789 he, along with the other members of his family, went into exile. In 1792 he joined the royalist forces under his father in Flanders, and on the dissolution of this army he served under his grandfather, and specially distinguished himself at the battle of Berstheim in 1793. In 1794 he was made knight of the order of St. Louis, and from 1796 to 1799 he commanded the vanguard of his grandfather's forces. When these were disbanded in 1801, he contracted a private marriage with the Princess Charlotte, niece of Cardinal de Rohan, and took up his residence near Ettenheim in Baden. Being suspected of concocting a plot against Napoleon Bonaparte, spies were placed to watch his movements, who reported, it is said falsely, that he was in the habit of making frequent secret journeys along with General Dumouriez. Bonaparte, therefore, thought it necessary to seize his papers, and, on March 14, 1804, caused his château to be surrounded by 400 gendarmes, who took the duke prisoner, and conducted him to Strasburg. After being brought to Paris on March 20th, he was conducted to Vincennes, where he was tried by court martial, and, without being found guilty of any definite charges, was, on the morning of the 21st, at four o'clock, condemned to death as a traitor. Half an hour afterward he was led out to execution, and as soon as he was dead he was thrown into a grave, which, in antici-

pation of his sentence, had been prepared beforehand. Upon Napoleon's conduct in these arbitrary proceedings various interpretations have been put, but there are scarcely materials for forming a decisive judgment. It was in reference to the execution of the Duc d'Enghien that Fouché made the remark which has passed into a proverb: "It was worse than a crime; it was a blunder." After the Restoration the remains of the duke were removed to the chapel of the castle at Vincennes.

ENGINEERING—the art of designing and constructing works—embraces a very wide range of subjects, and the different departments into which the profession is now divided do not admit of very strict definition; but it may be mentioned that *civil engineering* includes the design and construction of canals, river navigations, harbors, docks, roads, bridges, railways, lighthouses, water supply, irrigation, sewerage, gas supply, telegraphs, etc.; *mechanical engineering* includes machinery, mill-work, steam-engines, iron shipbuilding, agricultural implements, etc.; *mining engineering* includes the working and raising of coal, iron, lead, copper, etc., and other minerals; and *military engineering* includes fortifications, gunnery, artillery, telegraphy, etc., as applied in warfare.

ENGLAND, comprising, with Wales, the southern portion of the island of Great Britain, covers an area of 58,320 square miles. It corresponds in latitude with Northern Germany and the Netherlands. In shape it is nearly triangular; and owing to its being surrounded by the sea on all sides, except for a distance of about seventy miles on the Scottish border, it has a most extensive coast-line. The seas which encircle it are the German Ocean or North Sea on the east, and the Atlantic Ocean on the west and south, the latter receiving in some of its parts the names of the Irish or St. George's Channel, and of the English Channel. The coast is much indented, more particularly on the Atlantic side, the total length, following the indentations, being estimated at over 2,000 miles.

There are few countries more diversified in physical structure, or in soil, climate or natural scenery, than England. As regards physical structure, it has been truly described to be in itself "an epitome of the geology of almost the whole of Europe." Nearly all the formations of the earth's crust, from the Silurian upward to the most recent, are to be found, in layers more or less thick, in different parts of England. The lowest geological formations, known in general as Primary or Palæozoic, are met with principally in the north and northwest of England, in the counties of Cumberland and Westmoreland, and in North Wales. The rocks of Cumberland and North Wales, belonging to the Lower Silurian formation, consist mainly of slaty and gritty strata, interbedded with various kinds of felspathic lava and volcanic ashes, accompanied by numerous bosses and dykes of greenstone, quartz-porphyr, and other igneous rocks. These latter contribute greatly to give rise to that peculiar mountainous aspect which distinguishes these districts. The next geological formation, above that of the Silurian, is found in the Old Red Sandstone, and the so-called Devonian rocks, which occupy extensive tracts in Devonshire, Cornwall, South Wales, Herefordshire and Worcestershire. Above these strata comes the Carboniferous Limestone, composed entirely of sea-shells, ennerites, and other organic remains, which formation, stretching from South Wales through the southwest of England into Derbyshire, attains in parts a thickness of 3,000 feet and more. Next above the Carboniferous Limestone come the strata, all-important to England, known as the Coal Measures, a term originally used by the miners. The beds of coal, solid basis of England's modern supremacy in arts, manufactures,

and, to some extent, political power, lie upon a peculiar stratum, which generally, but not always, is of the nature of fire-clay. Coal itself is well known to consist of mineralized vegetable matter, the intermingled shales and sandstones still showing the impressions of trunks of trees, ferns, and reed-like plants, and it is supposed that this fire-clay was the original soil upon which grew the priceless treasure.

The Coal Measures are covered by the Permian rocks of England, which complete the geological formation to which the name of Palæozoic or Primary strata has been given. "During the time they were forming," says Professor Ramsay, "this part of the world suffered many ups and downs, accompanied by large denudations; but at the close of the Permian period, a disturbance of the strata on the greatest scale put an end to this great Palæozoic epoch over all our area, and much more besides, and from the Permian beds downward to the Cambrian strata a large part of what is now England was heaved up and formed dry land, to be again wasted and worn away by sea-waves and rivers, and all the common atmospheric agencies.

If, in the physical structure of England, the Primary strata form a highly important element as containing the Coal Measures, the more immediate nature of the soil is determined by the Secondary and Tertiary formations. Among the Secondary strata, none are more interesting than the so-called "Wealden series" of southern England. Geologists are agreed upon the fact that the Wealden and Purbeck beds represent the delta of an immense river, equal in size to the modern Ganges or the Mississippi, the waters of which carried down to its mouth the bodies of huge reptiles and mammalia now extinct, or the semblance of which is to be found only in the tropical regions. But if this much is ascertained, by the evidence of organic remains found in abundance in Kent and Sussex, there is, and in all likelihood ever will be, complete ignorance as to the shape and extent of the continent which this great river drained, and of which England then formed a part. Professor Ramsay surmises that "in size it must have been far larger than Europe, and probably as large as Asia, or the great continents of North or South America."

The formation of the Tertiary or Eocene period lie all over England, the most recent being represented by the alluvial beds of Norfolk, Suffolk and South Hampshire, and of the basin of the Thames. The whole of the east coast of England, and a great part of the south coast, not only bear the mark of the most recent geological changes that have taken place in this country, but are affected by a continuation of them to this day. A long extent of coast line constantly undergoes alterations, in some instances the land gaining upon the sea, and in others, rather less numerous, the sea upon the land.

If the sea retreated on some parts of the coast, it encroached, and is encroaching, on the firm land over a considerable extent of other coast line on the German Ocean, as well as on the English Channel. The process of destruction, slow in some places, is so rapid in others that it can be traced from month to month, and even from week to week—the incessant roll of the tides washing away the soft Eocene strata forming the base of the cliffs, and leaving the summits to roll over into the sea.

In conformity with the geological structure of England, its mountains lie in the north and west, falling into undulating ground in the center and toward the south, and leaving the eastern districts, bordered by the German Ocean, a uniform plain. The mountains of England may be looked upon as one principal chain, often interrupted, however, and with endless ramifications, stretching from the Scottish border, in Northumberland, down

to the western end of Cornwall, jutting out there into the Atlantic. The chain, traced in this direction, commences with the Cheviot Hills, the highest summit of which is Cheviot Peak, in Northumberland, 2,676 feet above the level of the sea. Stretching southwestward, the chain next merges into the mountain ranges of Cumberland and Westmoreland, comprising Skiddaw, 3,022 feet, Helvellyn, 3,118 feet, and Scawfell, 3,208 feet above the level of the sea. Within these ranges lie the only notable lakes of England, the largest of which, however, Windermere, does not cover more than three square miles. After sending out numerous branches eastward into the county of York, the chain sinks to modest elevations in Lancashire and Cheshire, but rises again in Wales, where it attains its greatest height in the summit of Wyddva, the pinnacle of the Snowdon range, 3,571 feet above the sea. Partly lost in the Bristol Channel, and partly ramifying through Gloucestershire, Wilts and Somerset, the chain next rises into high table-land in Devonshire—Dartmoor Forest, averaging an elevation of 1,500 feet above the sea-level, forming its most elevated portion.

Essentially dependent on the configuration of the chain of mountains traversing England is that of its rivers. As the mountainous regions are in the west, the principal rivers flow away from them, toward the east, with but few exceptions. Surrounded by the sea, and with a moist atmosphere, England has a comparatively large number of rivers, though none of them of great length, their course being in most instances the shortest allowed by the configuration of the island. At the head of English rivers, with acknowledged supremacy over the rest, stands the Thames. It drains an area of 6,160 square miles, exclusive of its lower estuary, calculated to embrace an additional drainage of about 4,000 square miles. Next in extent of area of drainage come the Trent and Ouse, the joint waters of which form the Humber, carrying off the rainfall from 9,550 square miles of land, or about one-sixth of the whole of England. The Witham, the Welland, the Nen and their tributaries, flowing into the old estuary of the Wash, drain together an area of 5,850 square miles. The Severn drains an area of 8,580 square miles, being more than that of all the other westward running rivers together. Next to it stand the Mersey, which, with its sea-estuary, drains 1,750 square miles, the Avon, which drains 1,210 square miles, and the Eden, which drains 995 square miles of land.

Affected by its insular position, with no part of its land more than a hundred miles from the sea, and perhaps equally as much—though modern scientific investigation has not quite set this matter at rest—by that most remarkable current of the ocean known as the Gulf Stream, the climate of England is much milder than that of any other country in the same latitude on the continent of Europe, or in America. The mean annual temperature of England in recent years has been 49.7° —that of summer averaging 60.8° , and that of winter 39.5° . The principal cause of this very high as well as very equable temperature, contrasting to a marvelous extent with that of other countries in like latitude, such as, for example, Northern Canada, is generally ascribed, with but few dissenting opinions, to the constant flow of heated water bathing the western shore of the island.

But it is not warmth alone, but moisture, which the Gulf Stream gives to England. Here, as in the greater part of Western Europe, the prevailing winds are from the southwest, bringing with them the warm, moist air of the great Atlantic current, and discharging it in rainfall all over the land. This is strikingly shown in the statistics of rainfall in England, which prove it far

higher in the western than in the eastern counties, and greatest in those parts where the moist Atlantic air-currents are unimpeded by mountain ranges.

The physical aspect of England has had little to do with its civil divisions, which are somewhat arbitrary, and remote in their origin. The division of the country into tythings, hundreds, and counties, is generally attributed, on the authority of Ingulphus, to King Alfred, but it is more probable that he only systematized what already existed, in the general survey which was taken during his reign. English county names occur in history before the extinction of the Heptarchy, some of the smaller kingdoms of which, as Kent, Sussex, and Essex, became counties under the new political settlement. At the same time, the kingdom of Wessex was composed of counties with still existing names, Berkshire, Hampshire, Wiltshire, and Somersetshire. Under King Alfred's re-arrangement, virtually that of the present day, as far as the larger divisions are concerned, physical boundaries were frequently disregarded, which had its cause probably in the existence of the older political borders, such as those existing during the heptarchy.

Coöperating in their influence, climate and geological formation have given England a soil moderately fertile, yet adapted on the whole more for pasturage than for agriculture.

Modern legislation has made few changes in the ancient divisions of England into counties, or shires, and hundreds. Each of the forty counties of England and twelve counties of Wales is still primarily divided into hundreds, although the borders thus formed are little more than nominal, the hundreds having become practically extinct as an administrative subdivision. Originally signifying a district containing a hundred families, the division lost its meaning entirely with the unequal increase of population, and at present, while some hundreds count their population by hundreds of thousands, others have not gone far beyond the number that gave rise to the name.

Quite as early as the division of the country into hundreds was that into ecclesiastical districts. But they varied much, both in number and extent, up to the time of the Reformation, and there have been constant alterations up to the present time. The ancient division of the land for ecclesiastical purposes was exclusively into parishes, or districts containing a church; but as the population went on increasing, and additional places of worship came to be erected, some portions of the old parishes were generally assigned to the newly formed districts. First known simply as chapelries, these districts gradually acquired boundaries as definite, and as fully recognized by law, as those of the parent parish. In recent years, the term parish has acquired a rather uncertain meaning, being used in a twofold sense—the clergy adhering to the old signification of ecclesiastical district, while the poor-law authorities make it the designation of boundaries separately rated for the relief of the poor.

Besides the divisions already enumerated, there are various others of minor importance, or not in frequent use. Of this character are the so-called lieutenancy subdivisions, established to carry out the laws affecting the militia. Within the boundaries thus formed, lists are kept containing the names of all men liable to serve, under certain circumstances, in the militia of England and Wales, so as to keep the force in permanency. A subdivision of another kind is that of the country into highway districts.

Until the beginning of the present century, there existed no other knowledge of the actual area and population of the country but what was given in the vaguest

estimates. But there can be little doubt that the population of England and Wales was almost stationary for centuries, owing chiefly to want of intercommunication, which led to famines, more or less severe—it being a common occurrence that, while one county, with a good harvest, was reveling in abundance, the people of the adjoining one were starving. It is calculated, on the basis of a number of parish registers, that, in 1650, the population of England and Wales numbered 5,430,000, having probably risen less than half a million during the lapse of a century. In the course of another century, when there was a feeble commencement of road-making, the increase amounted, probably, to close upon a million, the calculated population of 1750 being 6,400,000. From that time began a marked increase, and at the taking of the first census, in 1801, it was ascertained that the population, living on an area of 58,320 square miles, or 37,324,883 acres, numbered 8,892,536, being—if the former estimates were approximately correct—an increase of very nearly 2,500,000 in little over fifty years. This rate of increase was not only continued, but came to be greatly exceeded in the present century.

The area of the United Kingdom is 120,832 square miles, with a population, estimated in 1887, at 37,091,564, exclusive of persons in the naval and military service abroad. In 1887, 396,702 persons emigrated from the United Kingdom, 296,881 of whom went to the United States. During the thirty-five years previous to 1888, a total of 2,165,532 persons emigrated from Ireland to the United States. From official figures, it appears that in 1887 the population of the principal cities was as follows: London, 4,215,192; Glasgow, 674,095; Liverpool, 592,991; Birmingham, 441,095; Manchester, 377,529; Dublin, 353,082; Leeds, 345,080; Sheffield, 316,288; Edinburgh, 236,002; Bristol, 223,695; Bradford, 224,507; Nottingham, 224,230; Hull, 196,855; Newcastle-on-Tyne, 157,048.

Commerce.—The total value of imports in 1887 amounted to £361,935,006, and the exports to £221,398,440. The principal articles of imports and their value was (cereals, provisions and beverages) £148,860,404; tobacco, £3,409,267; metals, £16,618,148; raw materials for manufactures, £111,963,919; chemicals and dye-stuffs, £7,728,884; oils, £6,088,246; manufactured goods, £54,134,820. The principal articles of export and their value was, food and beverages, £10,093,317; raw materials, £12,753,980; textiles, £108,060,714; metals, raw and manufactured, £34,930,183; machinery, £11,145,745; clothing, etc., £10,227,990; chemicals and drugs, £7,028,392; other articles manufactured, £27,158,119. The quantity of wheat imported in 1887 was 11,156,930 quarters, almost 3,000,000 quarters less than in 1885. Of this import 6,100,000 quarters were furnished by the United States, 1,418,000 quarters by India; 660,800 by Canada; 224,500 by Australia; 922,130 by Russia; 367,710 by Chili, and 258,620 quarters by Germany.

The total value of the product of fisheries in 1887 was £6,180,408; number of men employed, 125,764, with 32,189 boats. The total value of mining products in 1886 was £55,010,241; chiefly coal, valued at £38,145,930 and iron-ore valued at £11,259,834. There were in 1886, 561,092 persons engaged in mining of whom 448,657 worked below the surface. Of the coal 4,081,343 tons, valued at £1,635,560 were shipped to France; 2,857,819 tons, valued at £1,009,560 to Germany; 2,852,204 tons, valued at £1,101,698 to Italy. 6,566,451 tons of pig-iron and 2,541,921 tons of steel were manufactured in the country.

In 1885 there were 7,465 factories in the United

Kingdom employing 406,320 males, 629,248 females, 91,611 children

The total tonnage of the 17,917 vessels composing England's merchant-marine was 7,134,269 in 1886. The number of men employed was 204,584. The tonnage of vessels which entered and cleared the British ports in 1886 was 62,841,077 of which 46,078,299 tons were under the British flag; 3,848,860 tons under that of Norway; 3,535,926 under that of Germany; 1,782,752 of France; 1,463,675 of Denmark; 1,386,076 of Sweden; 1,486,970 of Holland; 952,066 of Spain; 537,845 of Italy; 620,726 of Belgium; 429,616 of Russia and 392,286 of the United States.

Finances.—The total revenue of the government for the year ending March, 1888, was £88,135,000 and the expenditures £87,846,295. On March, 1887, the public debt of Great Britain was £736,278,688, the annual interest amounting to £27,958,023. During 1888, £514,000 three per cent. stock was consolidated, so as to draw but $2\frac{1}{2}$ per cent. interest from the year 1903.

Railroads.—There were in 1886, 55,131 miles of railroad in operation in the British Empire, 19,332 miles of which were in the United Kingdom, 13,390 miles in India, 11,523 in Canada, 8,891 in Australia, 1,995 in South Africa. The railroads in the United Kingdom carried 725,584,300 passengers in 1886, and the total receipts for the year 1887 were £70,900,000.

Education.—The number of schools in England and Wales were 19,022 in 1886, and 3,092 in Scotland. In the former the average attendance of pupils was 3,438,425, and 476,890 in the latter. The total number of teachers in England, Wales and Scotland was 100,569. Four thousand four hundred and two schools in England and Wales were under the direction of school boards, 11,798 were controlled by the Church of England; 554 were Wesleyan; 882 were Roman Catholic; and 1,387 were non-sectarian. In Ireland there were in 1886, 8,024 national schools in operation, with an average attendance of 490,484 pupils. The cost of maintenance of the schools in England and Wales was estimated at £3,576,077 for the year 1888-89. In 1886, a royal commission on education was appointed, which made its report and recommendations in June, 1888. The commission recommended, that school accommodations be provided for one-sixth of the population; that ten square feet be the minimum space for each child; that an adequate number of secondary schools for the wants of the country be supplied, in order that children of poor parents might take advantage of them; that classification, instruction and examinations, which, under the present methods, lead to cramming and overwork, be made more elastic; that schools for the training of teachers, now mainly conducted by sectarian colleges, and secular normal schools be established on a large scale by the state; that the minimum age at which a child can be taken from school and sent to work should be eleven, instead of ten as heretofore. Reading books should be increased and school libraries provided; drawing should be taught as an aid to instruction in writing, and the teaching of arithmetic should not be confined to dry exercises in numbers, but ought to show the application of the science; the extension of instruction in English history, geography and elementary science; pupils should receive some physical training, and the girls receive instruction, in addition to their needlework, in practical cooking and elementary physiology. Manual training in the elementary schools was also recommended.

Post-office and Telegraph.—There were 17,191 post-offices in operation on March 31, 1887, with 50,033 male and 3,767 female employees. The number of letters

mailed in 1887 was 1,460,000,000, 180,000,000 postal cards, 151,000,000 newspapers and periodicals, and 402,000,000 packages; 10,813,034 foreign money-orders were issued, valued at £25,354,601. The inland money-orders numbered 9,762,562, valued at £22,262,780; 31,605,984 postal-orders were issued, valued at £12,958,940. There were 8,351 postoffice savings banks in 1886, with 3,731,421 open accounts, amounting to £50,874,330. The deposits made in 1886 were 15,696,852 against 15,034,694 in 1885. There were 3,643,161 open accounts in England and Wales, 139,681 in Scotland, and 158,848 in Ireland, on December 31, 1887. The total amount standing to the credit of all open accounts was £53,974,065.

The revenue from the postoffice in 1886-87 was £10,715,976; expenditures, £8,201,343.

Telegraph.—On April 1, 1887, there were 29,895 miles of telegraph lines in operation, with 173,539 miles of wire. The revenue for 1886-87 was £1,855,686, and the expenditures, £1,939,768. The total number of messages sent was 50,243,639.

The Army and Navy.—The total strength of the British army in 1887 was 208,357 officers and men. The number of field artillery was 624 cannon. The cavalry numbers 24,242 horses. Besides these regular forces the militia and rifle volunteers number over 400,000 men. The military police in Ireland numbers 13,000 men.

In December, 1887, the British navy consisted of 506 vessels of all description, 106 of which are engaged in harbor service. The armament of the navy in 1887-8, consisted of 1,281 breech-loading cannon, 790 quick-firing guns and 1,818 torpedo boats. Nearly £3,000,000 are now being expended on new vessels, hulls and machinery. The hull of *Sans Pareil*, a sister ship to the *Victoria*, was completed in September, 1888. She has a displacement of 10,470 tons with an armor of from sixteen to eighteen inches in thickness, a single turret constructed of compound eighteen-inch plates, mounting a ten-ton gun, and a coal space for a voyage of 7,000 miles at ten knots, while her maximum speed is seventeen knots. The *Medea*, the *Medusa* and the *Melpomene*, with 2,800 tons displacement and 9,000 horse-power engines each, were finished in the latter part of September, 1888. During the year 1887-8, eighteen vessels, with an aggregate tonnage of 64,650 ton, were completed, and in 1888-9, twenty-nine new vessels with an aggregate tonnage of 100,000, 60,000 of which are ironclad, will be completed.

Religion.—The Established Church in the United Kingdom is the Protestant Episcopal. It numbered, in 1883, 13,500,000 members in England and Wales, and 76,939 in Scotland. In 1888 it numbered 620,000 members in Ireland. The established religion possesses 14,573 churches, with 24,000 clergymen. There are two archbishops and thirty-one bishops in England. The Presbyterian Church of Scotland numbered 1,625 churches and 1,700 clergymen, in 1887, with a membership of 571,029. The Roman Catholics in England, Wales, and Scotland, numbered 1,680,000 in 1887, with 1,631 churches, and 2,648 priests. The Roman Catholic population of Ireland in 1881 was 3,960,891. The Jewish population of Great Britain in 1883, was estimated at 70,000, of whom more than one-half resided in London.

The British Empire, including the colonial possessions, has a total area of 8,981,130 square miles, with a population, estimated in 1886, at 310,735,846 souls; of this number 256,000,000 are inhabitants of India. The British possessions include Gibraltar, in Spain; Malta and Cyprus, in the Mediterranean; Heligoland, in the Baltic; Aden, India, Ceylon, Perrin, Labuan, the Keel-

ing Islands, the Kurea Murea Islands, and Hong Kong, in Asia. Cambia, the Niger Districts, Sierra Leone, Lagos, St. Helena and Ascension Islands, Tristan, d'Acunha, Socotra, Mauritius, St. Paul and Amsterdam, Cape Colony, Basutoland, Bechuanaland, Zululand, Natal, Berbera, and a portion of the Gold Coast, in Africa. The Dominion of Canada, Newfoundland, the Bahamas, the Bermudas, Barbadoes, Jamaica and Turk's Island, Leeward Islands, Windward Islands, Trinidad, Honduras, Guiana, Falkland Islands, and South Georgia, in America. The colonies of Australia and New Zealand, the Norfolk Islands, British New Guinea, the Kermadec Islands and Auckland, Lord Howe, Caroline, Harbuck, Maden and Fanning Islands, in Australasia and Polynesia.

Commerce—Shipping. British commerce received an enormous development, unparalleled in the history of any nation, during the half century from 1826 to 1876. In the year 1826 the aggregate value of the imports into and exports from the United Kingdom amounted to no more than £88,758,678; while the total rose to £110,559,538 in 1836, and to £205,625,831 in 1846. In 1856 the aggregate of imports and exports had risen to £311,764,507, in 1866 to £534,195,956, and in 1876 to £631,931,305. Thus the commercial transactions of the United Kingdom—those of England by itself cannot be given—with foreign states and British colonies increased more than sevenfold in the course of fifty years.

Government and Laws. As England stands alone in the greatness of her wealth, the extent of her commerce and the vastness of her manufactures, so also does she hold a unique place among nations as regards her government. Under the nominal form of a hereditary monarchy, with restricted powers, the nation is actually governed by two Houses of Parliament, whose laws, when assented to by the sovereign, form the statutes of the realm. It has been already remarked in the article CONSTITUTION AND CONSTITUTIONAL LAW that, in respect of her government, "England differs conspicuously from most other countries. Her constitution is to a large extent unwritten, using the word in much the same sense as when we speak of unwritten law. Its rules can be found in no written document, but depend, as so much of English law does, on precedent modified by a constant process of interpretation." One of the most thoughtful of modern political writers, the late Mr. Walter Bagehot, sketched in perhaps fewer words than any other, the nature of this unwritten and constantly modified constitution in its most recent aspect. "The efficient secret of the English constitution," he says, "may be described as the close union, the nearly complete fusion, of the executive and legislative powers. According to the traditional theory, as it exists in all the books, the goodness of our constitution consists in the entire separation of the legislative and executive authorities; but in truth its merit consists in their singular approximation. The connecting link is the Cabinet. By that new word we mean a committee of the legislative body selected to be the executive body. The legislature has many committees, but this is its greatest. It uses for this, its main committee, the men in whom it has most confidence. It does not, it is true, choose them directly; but it is nearly omnipotent in choosing them indirectly." It is a striking illustration of the fact of the constitution of England being "unwritten" that the Cabinet, though universally and undisputably admitted to represent the government of the country, remains utterly unknown as such both to the written law and the legislature. The names of the persons who compose the Cabinet for the time being are never officially announced, nor are there even any official records of its

meetings, or of the resolutions which may have been come to at them by the members. Strangest of all, the Cabinet, virtually nominated by the legislative body, and depending for its existence on a majority of supporters in it, has never yet been formally recognized by any Act of Parliament.

Although the assumption of the executive by a committee of the legislature is of comparatively modern date, forming, as Lord Macaulay says, "the great English revolution of the seventeenth century," the supreme authority of Parliament is of ancient date, forming a part of the common law of the realm. "The power and jurisdiction of Parliament," Sir Edward Coke laid down the rule, "is so transcendent and absolute that it cannot be confined either for causes or persons, within any bounds." With equal emphasis, Sir William Blackstone added that to Parliament "that absolute despotic power, which must in all governments reside somewhere, is entrusted by the constitution of these kingdoms." In constitutional fiction, Parliament consists of three "estates of the realm," namely, first, the Lords Spiritual, secondly, the Lords Temporal, and thirdly, the Commons; but the more modern form of division is that into two Houses, described as the Upper and Lower, or that of the Lords and the Commons. (See PARLIAMENT.)

The government through the sovereign, has an unrestricted power for creating new peerages, which at times has been largely used for political purposes. During the reign of Queen Victoria, up to the end of 1877, there were created 151 new peerages under various administrations. The 151 peers so created form at present more than one-third of the House of Lords, deducting from its roll the spiritual and representative members. Nearly three-fourths of the existing peerages have been created since the accession of the House of Hanover.

The actual functions of the House of Lords, as a branch of the Legislature, are not very clearly defined; but it is generally assumed that it has a revising faculty over all bills passed by the Commons, except those relating to the public revenue and expenditure. As a rule, a very small number of peers take part in the work of a session, and the extremely limited attendance is signified by the rule that three members are sufficient to form a quorum in the Upper House, while there must be forty in the Lower House. One of the reasons of non-attendance of the members of the House of Lords is found in their special privilege of voting by proxy, instead of in person, which is largely exercised. Most of the sittings of the Upper House are not only very short, but irregular, the custom being to adjourn "during pleasure," which means that the Lord Chancellor or the deputy speaker, may, in the exercise of his discretion, two other peers being present, take his seat on the woolsack, and order business to proceed at any hour during the day. Besides its legislative functions, the House is invested with high judicial powers, forming the supreme court of appeal in the realm.

If nominally inferior to the Upper House, the Lower House of Legislature, or House of Commons, stands above it in actual power and authority. It is a power constantly on the increase, and tending to absorb all others, having proved the most auspicious for government.

Although politically omnipotent, the House of Commons cannot prolong its own existence beyond seven years. The average duration of Parliaments in the present century has been three years and eight months, a term almost exactly coinciding with the average duration of Cabinets within the period.

The constitution of the House of Commons, in its present state, as framed by the Reform Bills of 1832 and 1867-68, is that of a body elected by nearly univer-

sal suffrage, but in very unequal electoral divisions. Under the English Reform Act of 1867, extended with slight changes, to Scotland and Ireland in 1868, the franchise was given to all householders in boroughs, and occupiers of lands or houses rated at no less than £12 in counties, thus admitting to the right of electing members of Parliament the majority of the adult male population, with the sole exception of the class of agricultural laborers. The elections, under an Act passed in 1872, take place by secret vote and ballot. It appears from an annual return made by order of the House of Commons, that, at the end of June, 1877, the total number of its constituents in England and Wales amounted to 2,377,761, while in Scotland at the same date the number was 302,313, and in Ireland 231,265.

There is no fixed number of members for the Cabinet, any more than of regular meetings of the members admitted to it. In recent years the number of members varied from eleven to sixteen, the former, the lowest ever attained, being in 1876, under the premiership of Mr. Disraeli, just previous to his elevation to the peerage under the title of Earl of Beaconsfield. All Cabinets yet formed included the following nine members of the administration:—the prime minister, the lord chancellor, the lord president of the council, the chancellor of the exchequer, and the secretaries of state presiding over the departments of foreign affairs, war, India, the colonies, and home affairs. To these nine members there are usually added various others, most frequently the first lord of the admiralty, the postmaster-general, the chief secretary for Ireland, and the president of the board of trade.

In closest contact with the constitution and government of England, and similar to them in nearly every respect, are its laws and their administration. Unlike most other countries, England has no code of laws; nor would codification be easily possible, seeing that the principles which govern the national jurisprudence are, like those which lie at the basis of the constitution, as much "unwritten" as "written." Broadly, the whole body of laws may be divided into two classes, namely, first, those springing from immemorial usage, sanctified by judicial decisions, and, secondly, those springing from parliamentary enactments.

The Judicature Act of 1871, amended and enlarged in 1873, and in operation from November 1, 1875, made very important alterations in the administration of justice in England. By its provisions, aiming centrally at a fusion of the judicature for the better distribution of judicial force, there was formed a single court, called the "High Court," divided into five departments, called respectively the Queen's Bench, the Chancery, the Common Pleas, the Exchequer, and the Probate, Divorce, and Admiralty divisions. It is in these divisions that is vested the administration of the law, while the "High Court," or, more fully, the "High Court of Justice," as such, can scarcely be said to have any existence. It is, as one of the judges described it soon after the passing of the Judicature Act, an *ens rationis*—that is, it exists only in theory, or in contemplation of law.

At the head of the judicial administration of the kingdom, as at present constituted, stands the lord high chancellor of Great Britain, a political officer changing with the Cabinet, presiding over the supreme Court of Judicature, and forming part also of the judicial committee of the Privy Council, sitting as a court of appeal. There are annually about 100 cases heard and determined before the judicial committee of the Privy Council, and seldom less than 300 cases "remaining for hearing" or in arrears, the number tending to increase. All the judges of the divisions of the High Court form part of the judicial committee of the Privy

Council, which has besides four special paid judges. President of the first of the five divisions of the High Court of Justice, the Queen's Bench, is the lord chief justice of England, under whom are four "puisne justices," while the second division, the Chancery, is presided over by the master of the rolls, who has at his side three vice-chancellors administering law in the vice-chancellor's courts. Within the Chancery division are the great seal patent office, and office of the commissioners of patents for inventions, the designs registry, and the trade marks registry. In the third of the divisions of the High Court, the Common Pleas, the president has the title of lord chief justice, and in the fourth, the Exchequer, that of lord chief baron, the former having under him four "puisne justices," and the latter four "puisne barons." Finally, in the fifth division, that of Probate, Divorce, and Admiralty cases, there is one president and one judge, with an admiralty advocate, queen's proctor, and an admiralty proctor.

Besides the great courts of law, which, like the foregoing, have jurisdiction all over the kingdom, there are a number of courts exercising local jurisdiction within counties, boroughs, and other defined districts. Foremost among the courts of local jurisdiction are those of assize. The great inconvenience of resort by suitors from distant parts to the seat of the central courts of law led, from a very early period, to the appointment of justices "in eyre," or itinerant judges, authorized to hear civil and criminal causes within a prescribed circuit.

History.—England, the land of the Angles or English, is, according to its etymology, the distinctive name of that part of Britain in which, by reason of the Teutonic conquests in the fifth and sixth centuries, the Teutonic race and speech became dominant. The name is in itself equally applicable to the older home of the Angles, in Germany; but, though cognate forms, as *Angeln*, are to be found there, the exact forms *Anglia* or *England* do not seem to have been in use. As applied to later settlements of Englishmen, settlements made by men starting from Britain, it is used with direct and conscious reference to the elder England. New England implies Old England. The name is thus etymologically applicable to English settlements anywhere; historically it belongs to the great English settlement in Britain. And, in its use for many ages past, it has not taken in the whole of that part of Britain which is historically English. Part of northern England was at an early time detached from the English kingdom to form part of Scotland. And again, from the part of England so detached, the English tongue, and much of English blood, has further spread over part of the proper Scotland. In modern usage then England means somewhat less than the land which is marked out by its strict etymology. It does not mean the whole of the Teutonic part of Britain, but only that part of it which has formed the kingdom of England since the present line between England and Scotland was drawn. But in any case it should be remembered that the name is a purely political name. Britain is a certain part of the earth's surface, with unchangeable physical boundaries. England, Scotland, Wales, are political names of parts of Britain, which have had different meanings at different times, according as the part of Britain to which they have been applied has been larger or smaller. It is also to be remembered that these political names are comparatively modern. England, for instance, is not heard of by that name till late in the tenth century. In fact it hardly could have been a formal title, used in the country itself, till the many English settlements in Britain had become one kingdom. It is not, as we shall see, the oldest name for the Teutonic part of Britain. But as the various English kingdoms were

fused into one, England became and remained the name of that one. England then is that part of Britain which came and remained under the direct rule of the king of the English. It thus excludes Scotland, meaning by Scotland, as by England, a greater and a smaller space at different times. It also in strictness excludes Wales. Legal phraseology is not quite consistent on this head; but the more accurate description of South Britain is "England and Wales," rather than "England" only. Wales, first under its own princes, then under the English kings, was long a dependency of England rather than a part of England; and its complete political incorporation with England has not altogether destroyed its separate character.

England, then, is the name which certain historical events caused to be applied to a part of the Isle of Britain. The history of England, therefore, strictly begins with the beginning of those events which caused part of Britain to become England. The history of England has no concern with the earlier history of Britain, except so far as is needed to make the working of those causes intelligible. Nor need it dwell on the earlier history of the English before they came into Britain further than is needed for the same end. The history of England begins when the English first settled in Britain. But, in order to understand this settlement, some account must be given of the earlier condition both of the settlers themselves and of the land in which they settled.

Britain in the fifth century, the time of the settlement which gave to so large a part of the island the name of England, was in a state unlike any other part of the world. The greater part of the island, all that is now called England and Wales, with a considerable part of what is now called Scotland, had formed a Roman province, but had been cut off from the empire by the act of the imperial power itself. As the Roman legions had been 130 years earlier withdrawn from Dacia by Aurelian, so they were in the early years of the fifth century withdrawn from Britain by Honorius. The Teutonic invaders, therefore, found in Britain, what they did not find in Gaul or Spain—an independent people, who doubtless kept many memories and fruits of their long subjection to Rome, but who had ceased to be actual Roman subjects. The people whom the English found in the possession of this restored and somewhat precarious independence were the Celtic people of the Britons. It is not here needful to determine certain curious points of controversy, how far the purely Celtic character of the inhabitants of Britain had been modified by intermixture, either with races earlier than their own settlement or with Teutonic or other settlers during the time of Roman dominion. All the probabilities of the case would certainly go against the belief that the Celts found the Isle of Britain wholly uninhabited. That they were the first Aryan settlers there can be no reasonable doubt; but, even in the absence of any kind of evidence, we should expect that the first Aryan settlers would, in Britain, as elsewhere, find earlier non-Aryan settlers in possession of the land. One set of inquirers have made it highly probable that the cromlechs, and other prehistoric remains, which used to be vaguely called Druidical, are really the works of a race of inhabitants earlier than the Celts. Another set of inquirers have, from the physiological point of view, brought plausible arguments to show, not only that such an earlier non-Aryan population existed, but that it actually forms a perceptible element in the present population of South Britain. It has been argued that a large part of the population of the border shires of England and Wales is in truth neither English nor British, but comes of a non-Aryan stock akin to the Basques of Gaul and Spain. So, on the other hand, it has been

argued that a part of the Eastern coast of Britain had received Teutonic inhabitants earlier than the conquest of Britain by the Romans. It has been argued, too, and in this case argued with undoubted certainty, that, under the Roman occupation, soldiers and other subjects and allies of the empire of various races, the Teutonic race, among others, settled in the Roman province of Britain, and helped to form a part of its inhabitants. But, if all these doctrines are admitted in their fullest extent, they in no way affect the political history of England. They simply prove that the British people whom the English found in possession of the Isle of Britain had, like all other nations in all other times and places, had the purity of their blood more or less affected by foreign intermixture. They in nowise affect the fact that the English invaders found in this island a people who, for all practical and historical purposes, must be looked upon as Celtic, a people in whom the dominant blood, and the dominant national being, was undoubtedly Celtic. In the eye of general history they must be looked on, as they were in the eyes of their English conquerors themselves, as Britons. They were Britons, modified no doubt in every respect by their long subjection to Rome, but still essentially a British, that is, a Celtic people. And it is further clear that they were a people who had been less modified by Roman influences than the inhabitants of the other provinces of the empire. This is shown by the fact that the ancient British language survived the Roman Conquest, and still remains the language of a not inconsiderable part of the Isle of Britain. The mere fact of the existence of the Welsh language shows that Roman influences could not have been so strong in Britain as they were in Gaul and Spain. The military conquest and the political occupation were no doubt as complete in Britain as in any other province of the Roman Empire; but the moral and social influence of Rome must have been less than it was elsewhere. In Gaul and Spain the inhabitants adopted the name, the feelings, and the speech of Rome, and handed on their Roman speech to their Teutonic conquerors. The difference between the phenomena of Britain and the phenomena of the continental provinces is plain at a glance. The speech of Gaul and Spain at this day is Latin; the exceptions are only where the earlier languages survive in obscure corners. In the lands which formed the Roman province of Britain a Latin speech is now nowhere spoken, nor is there any sign that a Latin speech has ever been spoken as the popular language at any time since the withdrawal of the Roman legions. The dominant tongue is that of the Teutonic conquerors; but part of the island, a part somewhat more than a mere corner, keeps its ancient British speech. The Roman tongue, dominant and more than dominant in Gaul and Spain, has in Britain no place at all.

Britain, then, even if the Roman legions had not been deliberately withdrawn from it, was, at the beginning of the fifth century, in quite another case from the other provinces of the empire. Mere conquest had been as thorough as in any other frontier province; for it must not be forgotten that Britain was preëminently a frontier province. As the whole of Britain was never subdued, the part which was subdued always remained, like the lands on the Rhine and the Danube, exposed to the attacks of the still independent inhabitants of the island. But the usual results of Roman conquest, social and national assimilation, had been much less thorough than elsewhere, even in the frontier provinces. One main cause of this difference doubtless was the geographical position of the country. A large island, an island large enough to have a separate being of its own, is far harder to incorporate or assimilate than a land which is geo-

graphically continuous with the ruling country. The history of the greater Mediterranean islands proves this, and it is still more true of great oceanic islands like England. The British islands seem designed to form one political whole; yet it has been found impossible to unite Ireland with Great Britain in the same way in which the different parts of Great Britain have been united with one another. Britain, the most distant and geographically the most distinct of the provinces of Rome, was felt to be, and was constantly spoken of as, another world. In all ages and among all changes of inhabitants, the insular character of Britain has been one of the ruling facts of its history. Its people, of whatever race or speech, whatever their political condition at home or their political relation to other countries, have been before all things preeminently islanders. This must be borne in mind through the whole of British history. We are not dealing with Celts, Romans, Teutons, simply as such, but with Celts, Romans, Teutons, modified by the fact that they dwell in a great island, which was cut off in many ways from the rest of the world, and which acted in many things as a separate world of itself.

The result of this insular position of Britain was shown in many things during the time of the Roman dominion. It was remarked that no province of the empire was so fertile in tyrants. That is to say, no part of the empire produced so many of those military chiefs who, by the favor of their armies, sometimes it would seem with the good will of the inhabitants of the provinces, set themselves up as opposition emperors, in revolt against the acknowledged prince who reigned in the Old or the New Rome, at Milan or at Ravenna. The position of these tyrants must not be misunderstood, as if they at all consciously aimed at the foundation of national kingdoms. Their object was not to lop off a province from the empire, and to form it into an independent state. Their object was the empire itself, the whole if they could get it; if not, as large a share of it as their forces would allow them to hold. An emperor who ruled in Britain was anxious, if he could, to rule also in Gaul, to rule also in Italy. But the geographical necessities of the case stepped in, and often confined the emperors who arose in Britain to a purely insular dominion. That dominion was more easily won, and more easily kept as a practically distinct power, than the dominion of any of the continental provinces. It was again doubtless due to the geographical position of Britain that it was the one province of the west from which the legions were deliberately withdrawn.

The forsaken people, left to themselves, cried to their masters to come back to be their helpers; but the groans of the Britons fell in vain on the ears of Aëtius. He could deliver Gaul from the Hun; he felt no call to deliver Britain from the Pict or the Saxon. The inhabitants of the Roman province of Britain were left to defend themselves how they could, against the incursions alike of their neighbors in those parts of their island which Rome had never subdued, and of the more dangerous Teutonic invaders from beyond the sea. Thus forsaken by Rome, they seem to have tried to keep up some shadow of a Roman dominion among themselves. Their chiefs bore Roman titles; a tradition of imperial succession was kept up among the reputed descendants of the tyrant Maximus. So the first British prince whom history or legend brings into personal contact with the Teutonic invaders appears in the earliest versions of the tale, not as a British king, but as a Roman duke.

The Teutonic settlement in Britain must, in the general history of Europe, be looked on as a part of the great movement which drove so many of the Teutonic

nations westward and southward. It was part, in short, of the general wandering of the nations. But it had in many respects a character of its own, which distinguishes it in a marked way from the other western and southern settlements of the Teutonic conquerors. We have already seen that the condition of Britain and inhabitants in the fifth century was widely different from the condition of Gaul or Spain. The land had never been so thoroughly Romanized, and the Roman legions had been withdrawn by a voluntary act of the Roman government. Here we have one point of difference; we have also seen that there is another point of difference in the mere fact that the invaders came by sea. But the difference in the position and character of the invaders themselves was more important still. The great mass of the Teutonic settlers who entered the empire by land had already acquired some tinge of Roman cultivation. They already knew something of the arts, the laws, and the religion of Rome; they served in the Roman armies; they received grants of land within the Roman dominions as the reward of their services. Their princes were proud to bear Roman titles of honor, military or civil. The conquest was in many cases veiled under some form of decent submission to the Roman power. The Teutonic chief, in truth a foreign invader, did not scorn to give his occupation a show of legality by accepting some kind of commission from the emperor. In short, in most of their continental conquests, the Teutons were to the Romans, if conquerors, yet also disciples. In most cases they had embraced Christianity before their final settlement on Roman ground. Where this was not the case, their conversion speedily followed on their settlement.

The case of the Teutonic tribes which settled in Britain was altogether different. They came from lands which had been altogether untouched by the Roman power, and where the arts, the language, and the religion of Rome were altogether unknown. They had never been Roman subjects, Roman soldiers, or even Roman allies. They had received no grants from Roman princes, nor had their chiefs been honored with Roman titles. They were, in short, altogether free from Roman influences. They had no share in that reverence for Rome and all that belonged to her that had so deep an effect on all who came within the range of her magic power. They came not, like the conquerors of the continental provinces, as disciples of a civilization which they revered, but simply as destroyers of a civilization of which they knew nothing. On the other hand, the gradual nature of the conquest gave the conquered in one district every opportunity of escaping into the districts which were still unconquered. There can be no reasonable doubt that the English conquest, in those parts of Britain which were conquered while the English still remained heathens, came as near to a conquest of extermination, to a general killing or driving out of the earlier inhabitants, as was possible in the nature of the case. A complete physical extermination, the killing or driving out of every individual of a whole people, is a thing which cannot take place, except in the case of some utterly helpless tribe attacked by people immeasurably superior to them in physical resources. Even in such cases it commonly happens that the savage is not, strictly speaking, exterminated by the civilized man; he rather dies out before him. Still less could complete physical extinction take place with a people in the condition of the Britons at the English landing. In the course of the English conquest we may be sure that the alternative of death or flight was the ordinary rule; but we may be equally sure that the rule had its exceptions.

A new people thus settled in the land, a people who displaced, as far as their complete conquest reached, its

earlier inhabitants. From each successive district that was subdued all traces of the old state of things passed away, except a few of the gigantic works of Roman engineering skill. The old language passed away; English displaced Welsh as the language of every district which the English occupied. And the language of the conquerors, in thus displacing the language of the conquered, was hardly at all modified by it; a few Welsh and a very few Latin words were all that crept into English at this stage. The old local nomenclature passed away, except in the case of a few great cities and a few great natural objects.

In all these ways then the English conquest of Britain stands apart by itself, as something differing in all its main features from the common race of the Teutonic conquests elsewhere. There are only two parts of Western Europe which present phenomena which are at all like those of our own island. These are those parts of Germany which lie on the left bank of the Rhine and on the right bank of the Danube. There, as in Britain, a land that was Roman ceased to be Roman. The speech, the laws, and the manners of Germany displaced those of Rome. Thus far the case of these lands resembles the case of Britain, and is unlike the case of Italy, Spain, and the rest of Gaul. But their case differed in this, that the Rhenish and Danubian lands lay adjoining to the unconquered Teutonic lands; they were the lands which were specially exposed to Teutonic inroads. The earliest inroads of the invaders would naturally be of a more devastating kind than those which followed. It would largely be in the course of their earliest inroads that they picked up that amount of Roman culture which made the second stage of their inroads less devastating.

Such then was the general nature of the Teutonic conquest of the greater part of Britain, the conquest which changed so great a part of Britain into England. It was a destroying conquest which swept away the former inhabitants and their whole political system. It was specially a heathen conquest, which utterly rooted up Christianity from a land where it must have already taken deep root. It was a gradual conquest, spread over several centuries, a conquest in which the conquerors had to win each step by hard fighting against the earlier inhabitants. Lastly, it was a conquest which never was completed, which never spread over the whole island. Leaving for the present purely political questions about homage and supremacy, it is plain that there is a large part of Britain which remained untouched by the English occupation, and where the ancient inhabitants, their language, laws, and manners still lived on. And it may be added that, in some districts to which English occupation did extend, in those conquests namely which were the latest in date, the character of the conquest greatly changed from what it had been in its earlier stages.

The events which led to the Conquest began when men of Teutonic race first settled or tried to settle in the island, not as Roman soldiers or Roman subjects, but as foreign invaders of the Roman land. This work, which was not the English conquest, but which was the first step toward it, the conquest which was merely attempted and not carried out, seems to have begun in the second half of the fourth century. Claudian bears witness to the naval victories of the elder Theodosius, the father of the renowned emperor of that name, who (367 A.D.) beat back a Saxon invasion by sea. That is to say, an attempt at Teutonic settlement was then made; but there was still strength in the Roman power to hinder it. Had it been otherwise, the history of English conquest in Britain would have begun in the fourth century instead of in the fifth. Incursions undoubtedly went on; the southeastern coast of Britain, the part

specially exposed to Saxon invasion, got the name of the *Saxon Shore*, and a Roman officer with the title of count, had that shore under his special keeping. But things took quite a new turn after the withdrawal of the Roman legions from Britain. The land now lay open to settlement in a way in which it had not done before. It is now therefore that actual conquests, as distinguished from mere incursions and attempted settlements, began.

Our materials for the history of this great event, an event which is nothing short of the beginning of our national history, at first sight seem scanty. Our only absolutely contemporary notice is to be found in two meager entries in the chronicle of Prosper of Aquitaine, which, however, assert the main fact that Britain was brought under the power of the Saxons about the middle of the fifth century.

Our narrative, then, put together from these various sources, represents the Britons, after the departure of the Roman legions, as left without defense against the attacks of their northern neighbors, the Picts and Scots. They apply for help to Aëtius; but the Roman general, busy in the struggle with Attila, has no leisure to do anything for them. Their prince, who bears a name of which the most familiar form is Vortigern, invites the help of the Saxons, an unwise step enough, but one which has plenty of parallels in history. The British Prince, in the most authentic record, is not a king but a duke. The Teutonic leaders whom he invites are also *caldormen* or *heretogan*, not kings. They are the two brothers Hengest and Horsa. Their landing is fixed by the Chronicle to the year 449; and, without insisting on this exact date, it is plain that the Conquest must have begun about the middle of the fifth century. A warfare of nearly forty years, in which many battles are entered, established the first Teutonic kingdom in Britain, that of Kent, the one land which never lost its British name.

In the British narrative, in the single Roman entry, of these events, the Teutonic invaders are called *Saxons*. In the Chronicles they appear as *Angelcyn*, *Angle*, *Engle*, Angles or English. They are so called, not merely in the historical summary of the ninth century editor, but in the entry (473) which has the earliest ring of all about it. But when Bede, and after him the Chronicler, gives a short ethnological account of the invaders, they describe the Teutonic conquerors of Kent neither as Saxons nor as Angles, but as Jutes. As the Jutes, then, in the very record of their conquest, are spoken of, on the one hand as Saxons, on the other hand as English, it seems to follow that, from the very beginning, the Celtic inhabitants of Britain called all Teutonic invaders Saxons, while the invaders themselves from the very beginning used Angle or English as their common name. The general use of the Saxon name by the Celts is only what we should have looked for; the wide use of the English name among the Teutons themselves is a fact to be noticed. It is at least certain that, while the English name is often applied to Saxons and Jutes, it would be hard to find any case where an Angle calls himself, or is called in his own tongue, a Saxon. We need not infer that the English name had become the common name of all the three tribes before they left Germany; it certainly became so within no long time after they settled in Britain.

Here then we have, among a crowd of smaller states, a few kingdoms, seven or eight in number, which stand out prominently, and fill a place in the history of Britain. Among these again, a smaller number stand out at different times as aspiring, with more or less of success, to the general supremacy of the country. In all cases where a number of kindred but independent states lie near together, a supremacy of one kind or

another is sure to come, either by force or by consent, to some one among the number, in which the rest are, more or less quickly, more or less thoroughly, merged. Thus, in modern Europe, France grew into Gaul, and Castille grew into Spain: thus in our own day Piedmont has grown into Italy, and Prussia has gone far toward growing into Germany. So in the end Wessex grew into England; but it was not till after many struggles, many ups and downs, many changes of frontier, that the House of Cerdic became the royal house over the whole land. Three, or at most four, of the greater Teutonic kingdoms in Britain became serious competitors for the general supremacy over all the settlements of the race. Kent, small in geographical extent, had the start in order of time, and was in many ways favored by position. But any effected supremacy on the part of Kent belongs only to an early stage of English occupation; the powers among which the supremacy was really disputed were the great Saxon kingdom of Wessex, the great Anglian kingdom of Northumberland, formed by the union of Bernicia and Deira, and the Anglian kingdom of Mercia, which formed itself in the space between them.

The establishment of these kingdoms at the expense of the Britons forms the period of heathen conquest, which we may reckon at about 160 years. In the course of that time, the English, at first established only on the eastern and part of the southern coast, made their way step by step to the western sea. At the end of this period the whole of Britain was very far from being conquered; indeed, English conquest was very far from having reached its fullest extent; but the English had become the dominant race in South Britain. The Britons still kept a large part of the land; but they held it only in detached pieces. The English were the advancing people.

The time of heathen conquest thus ends with the first years of the seventh century. The introduction of Christianity among the English was so great a change, it gave so different a character to all the events that followed, that this would seem to be the most fitting point in our story to stop and attempt a picture of the general state of things in Teutonic Britain during the first century and a half after Teutonic conquest began. The introduction of a new religion did not stop warfare, whether between Englishman and Briton or between Englishman and Englishman. It did not stop aggressive conquest at the cost of either kinsman or strangers. But it so far humanized its new converts that warfare ceased to be exterminating. Conquest now meant political subjugation, and, for awhile, social degradation. It no longer meant the more frightful alternatives of death, flight, or personal slavery. The lands won by the English up to this date must be looked on as having become purely Teutonic. The Britons were swept away as nearly as a people can be swept away. The lands conquered after this time must be looked on as lands in which the dominant Teuton has largely assimilated his Celtic subjects. The process has gone on from that day to this, and it goes on still.

The English settlers in Britain brought with them all the elements of Teutonic society as they stood in their day. The distinction of *earl*, *churl* and *thow* went on in Teutonic Britain as they had gone on in Germany from time immemorial. Marks, hundreds, *gds*, arose on the conquered soil of Britain, as they had already arisen on the ancestral soil of Germany. But the circumstances of the conquest could not fail to hasten the process by which the smaller communities were gradually gathered into the larger. That the *gentes* settled by marks is plain from nomenclature; and, much as in Greece the same Doric tribes helped over and over again

to found distinct Doric settlements, so settlements of the same *gens* formed in distant parts of England bore the same name. The *gens* of the *Wellingas*, for instance, appears at Wellington in Somerset, at Wellington in Shropshire, and at Wellingborough in Northamptonshire. But the mark never could have had the same importance in England which it had in Germany. Such a settlement could never maintain itself alone in a country which was being conquered bit by bit. Every settlement must from the beginning have relied on the help of its neighbors, alike for further conquests and for the defense of what it had already won. Everything must have tended to closer union among the communities which grouped together to form the hundred, the *gd*, and the kingdom. The *gd* must, from the first, have been the lowest group capable of real separate being. And in Wessex, at least, each *gd*, as it was formed, was placed under the rule of an under-king of the royal house. In central England the *gds*, each doubtless under its separate king or ealdorman, often remained really distinct, till they were swalled up by the growing power of Mercia.

All these groups, greater and smaller, mark or township, hundred, *gd* or shire, and kingdom, kept the constitution of the primitive community, modified by such changes as change of circumstances could not fail to bring with them. So far as we can get any glimpses of any of them, we see in all alike the same elements. There is in all the presiding chief, the leading men proposing and debating, the whole body of freemen saying *yea* or *nay* to their proposals. The chief change was one of the highest practical moment, but which was not the result of any sudden revolution, or even of any enacted law. Democracy may change into oligarchy by the mere working of the laws of time and space. The simple freeman may have the same right to appear in the assembly of the kingdom which he has to appear in the assembly of his own township. But he is far from being so likely to be found there. Mere distance settles the question. Only the more wealthy and the more zealous will go long journeys to take a part in public affairs. Thus the assembly, popular and unlimited in its theoretical constitution, silently narrows till it becomes an assembly of the chief men, with such only of the common freemen as live near the place of assembly or are drawn to it in greater numbers than usual on some occasion of special excitement. The assembly of the kingdom, the *Witenagemot* or Meeting of the Wise, gradually took this character. There was no need to shut the mass of the people out; they shut themselves out. In the *Scirgemot*, the assembly of the shire, we see the working of the same law. Attendance has to be enforced by law; at least, a *minimum* number of each district is fixed. This practically comes to confining the assembly to those who are specially summoned; for a special summons to certain members is always found to lead in the end to the exclusion of those who are not summoned. In this way, without any formal change, by the mere working of natural causes, the popular character of the primitive assemblies died out. It died out of course more thoroughly in the higher assemblies than in the lower. The great assembly of the kingdom, in theory the gathering of all the freemen of the kingdom, shrank up into an assembly of the king's thegns, subject to the appearance of more numerous bodies of men on specially stirring occasions, and to the presence of the citizens of the town where the assembly was held, when it was held in a town. This will always happen whenever the assembly of a large country is primary and not representative. The more purely democratic its constitution, the more sure is it to shrink up into oligarchy. But

well to remember that, as long as our national assemblies kept any traces of their primitive shape, those great meetings which chose and deposed kings, which made and repealed laws, which made war and peace, were, in theory at least, meetings not of this or that class, but of the nation.

In the last paragraph we have been carried on somewhat beyond the date which we had reached in our narrative, somewhat beyond the period of heathen England. In so doing we have incidentally made mention of towns. The origin of the English towns certainly comes within the period with which we are immediately dealing. Than that origin no part of our subject is more obscure. But one negative point we may assert with full confidence: there is no trace of any possession, of any law or custom or office, which the cities and boroughs of England have inherited from the older municipalities of Rome. Whatever likeness may be seen between the two is due, beyond all doubt, not to direct derivation, but to the eternal law according to which like causes produce like results. In the primitive Teutonic system, in the system reaching from the mark up to the kingdom, there was no place for walled towns. The early Teuton looked on the walled town as a prison. When in after times strictly English towns arose, their position was wholly different from that of the Roman towns. The Roman town was the center and mistress of everything within its own range. The city was a commonwealth; the surrounding country was little more than a subject district. Without a city there could, in Greek and Roman ideas, be no organized political or social life. In the Teutonic system, on the other hand, towns were wholly unknown, and they have never in any Teutonic country come to fill the place which they have always filled in Southern Europe. The difference between English social life and that of the southern part of the European Continent, the shrinking of the English upper classes from town life in any shape but that of the capital of the kingdom, dates from the very beginning of our history. In Southern Europe the city is an essential of life; in England it is a kind of accident. When English towns did arise, they were simply districts where houses stood thicker together than elsewhere. The town was a mark, a hundred, perhaps a shire, in which more men lived within a smaller space than they lived in other marks, hundreds, or shires. But the question here arises, When did the English conquerors of Britain begin to occupy walled towns at all? It is certain that in many cases the Roman town was simply forsaken by its English conquerors.

The language, the laws, and the constitution which the English settlers in Britain brought with them from their older homes were in the course of ages to undergo many changes; the newer forms were to part away widely from the older; but all was to be gradual growth, gradual change; there was to be no sudden revolution, no supplanting of one tongue by another tongue, of one law by another law. But the English had brought with them from their older homes another possession which was to pass utterly away, a system which was to be thoroughly supplanted by a rival system of foreign birth. With their language and their laws they had brought with them their religion; and while their language and their laws were to abide, their religion was to pass away. The old religion of the English was, like their language and their laws, that form of the common Aryan heritage which had grown up among the people of Northern Germany. The old Teutonic faith is best known to us in the poetry and legends of that branch of the race which came to it longer than the rest, in the Eddas and Sagas of the Northmen of Scandinavia. Our system was doubtless essentially the same as theirs, though, as it

was laid aside by both High and Low Germans earlier than it was in Scandinavia, it may never have reached among them the same full poetic development which it reached in more northern lands. The names of the chief gods, Woden, Thunder, Frigga, and the rest, are the same, with only dialectic differences. The name of one of our old gods is of special interest; the great Aryan power of the sky, Zeus himself, appears among us, though with lessened honors, under the English form of *Tiu*.

The conversion of the English to Christianity was not only one of the great turning-points in the history of England; it was one of the great turning-points in the history of Christianity itself. It was, as far at least as the West is concerned, a conversion of a kind that was altogether new. Christianity is historically the religion of the Roman Empire; wherever the influence of Rome, East or West, has spread, there Christianity has been dominant; beyond that range it has taken little root. The Teutonic conquerors of the continental provinces accepted the religion of the empire as they accepted its laws and language. At the end of the sixth century, all the subjects, all the western conquerors of Rome, were Christian. Heathendom took in only the lands, like Scandinavia and Germany beyond the Rhine, which had never formed part of the empire, together with the one Western land which had wholly fallen away from the empire. The conversion of England was the first strictly foreign mission of the Western Church. It was the first spiritual conquest of a people wholly strange, a people who stood in no kind of relation to Rome and her civilization. It was the first act of a long series of spiritual conquests which gradually brought all Europe within the pale of the Church. And it was more than the first act of the series; it enlisted in the missionary work the people who were to send forth the most successful apostles to other lands. The conversion of England directly led to the conversion of heathen Germany and Scandinavia. Gregory, who was so anxious for the soul of Trajan, was himself a spiritual Trajan, enlarging his spiritual empire by conquests more lasting than the earthly conquests of Trajan himself. The conversion of the English to Christianity carried with it the re-admission of Britain into the general world of Europe. Throughout the fifth and sixth centuries the notices of the affairs of Britain in continental writers are rare and meager beyond expression. They show that Britain had fallen back into the isolation of the days before Cæsar; it had again become an unknown world, a world about which any kind of fable might be safely uttered. Such rare intercourse as that world had with the Roman world was through the Teutonic masters of Gaul, the Franks. The conversion of the English was gradual, and, on the whole, peaceful. Christianity was nowhere forced on an unwilling people by fire and sword, as was done in some later conversions. We find wars between Christian and heathen kingdoms in which religion is clearly one great animating cause on both sides; but we do not hear of persecutions or wars of religion within the bosom of any kingdom. As a rule, the king is converted first. The great men follow, perhaps in duty bound, as his thegns. The mass of the people follow their leaders.

There is something wonderful in the way in which Christianity fitted itself in, so to speak, to the old Teutonic institutions of England. The change in men's thoughts, the change in their ways of looking at most things, must have been great; but there is no sudden break. The old political and social state goes on; the old laws and institutions are not abolished; they are hardly modified; all that happens is that many new

laws are inserted among the old. But the laws bear the old character. The old scale of ranks is enlarged to take in some new members, in the form of the various degrees of the Christian priesthood. Some new crimes are forbidden; some new observances are enjoined; but the spirit of the law, the nature of the penalties, the manner of their execution, remains the same. The various ranks of the clergy have their value, in Teutonic fashion, along with the various ranks of the laity. Churches arose, and the fabrics, with their ministers and their property, were placed under the protection of the law. Provisions against idolatrous practices are found; but the old faith passed away so easily that but little legislation of this kind was needed. The land received a new geographical division in the form of ecclesiastical provinces and dioceses; but these commonly followed the existing civil geography.

Thus, before the end of the seventh century, Teutonic and heathen England embraced a new creed, and with that creed it had received those changes in thought, law, and custom which could not fail to follow on such a conversion. One change above all affects the general history. Warfare still goes on, warfare alike with the Britons and with Englishmen of other kingdoms, but warfare no longer implies extermination. Where the heathen conqueror carried mere slaughter and havoc, the Christian conqueror was satisfied with political subjection. The overthrow of Deua by Æthelfrith may well have been the last case of mere destruction. The greatness and fall of Penda form part of the history of the conversion; his reign was the armed resistance of heathendom to the new faith. His alliance with Cædwalla gave the Briton his last chance of greatness at the cost of the Teutonic intruder. When Cædwalla and Penda had both fallen before the sword of the Northumbrian Bretwaldas, two questions were solved. The Teuton and not the Celt was to be dominant in Southern Britain, but the rule of the Teuton was to be a Christian and not a heathen rule.

The same work must have been going on along the Mercian frontier also, but here we have not the means of studying it in the same detail. During these hundred and fifty years the Mercian kings spread their dominion a long way westward of the boundary stream of the Severn. But we hear far more of them as warring, often as conquerors, against the English powers to the north and south of them.

The name of *England* is not yet found in any contemporary writer. In truth, the oldest name for the Teutonic part of Britain is not *England*, but *Saxony*. This is only what was to be looked for. The lands won by the Teutons would first receive a common name from the Celts of the island, and that name, according to their usage, would naturally be *Saxony*. The Teutonic settlers themselves would not give their country a common name till they had reached some degree of political unity, but when they gave it a name, that name was naturally *England*. England, in short, as a political unity, began to be formed in the ninth century; it received its name in the tenth. Now that the various English kingdoms are brought so closely together, we begin to feel the need of a geographical name which may take them all in. Some name is needed, some name was doubtless soon felt to be needed, to distinguish the English kingdoms now united under West-Saxon supremacy from the other parts of the island. The position of Egberht could not be so well described as by calling him king of the West-Saxons and lord of all England. Lord of all Britain he was not, though he came nearer to being so than any prince before him. West Wales, if not actually incorporated, was brought into thorough dependence, and the princes of North Wales—that is, Wales in the modern sense—

were brought to acknowledge the West-Saxon supremacy. The Welsh of Strathclyde, the Picts, and the Scots, remained independent and untouched.

The dominion of Egberht passed to his son Æthelwulf (837–858), and from him to four of his sons in succession, Æthelbald, Æthelberht, Æthelred (858–871), and the more famous Ælfred (871–900). This succession involves a constitutional point, for we hear of a will of Æthelwulf, confirmed by the Witan, by which the order in which his sons were to succeed to the crown was arranged beforehand.

But the main history of England during these reigns, and indeed for a long time after, gathers round the successive Danish invasions. Christian England was now attacked by the heathen Danes, as Christian Britain had been attacked by the heathen English. But the results in the two cases were widely different. The Danes were not a people altogether foreign to the English; they were of kindred race, and spoke a kindred tongue. Had their inroads begun when the settlements of the Angles, Saxons, and Jutes were still new, they might have passed for a fourth branch of the same stock, come to share the spoil with their kinsfolk. As it was, their nearness in blood and speech made them disposed to accept a new religion at the hands of the English, and in the end to merge their own national being in that of the English, in a way in which the English themselves had been in no way disposed to do toward the wholly foreign races among whom they settled. The Danish invasions of England were part of a general movement which about this time began to carry the adventurous people of Scandinavia into all parts of Europe. Of the three great kingdoms into which they settled down about this time, Sweden had little to do with Western Europe; the advance of that power was to the east. But the people of Norway and Denmark ravaged everywhere, and settled in many places, along the coasts of Germany, Gaul, and the British islands. The Northmen founded powerful states, which have an occasional connection with English history, in Ireland, Orkney, and the Western Islands; but the Scandinavian settlements in England itself were almost wholly Danish in the stricter sense. Their invasions fall naturally into three periods. There is first a time of mere plunder; secondly, a time of local settlement, when Danish dynasties are set up in certain parts of England; lastly, when England, Denmark, and other European powers had grown into something more of definite shape and order, we find an attempt, and for a while a successful attempt, to place a king of all Denmark on the throne of a kingdom of all England. Of these periods it is the first two only with which we are concerned at this stage, and these two have their exact parallels in the two stages of English invasion in Britain. The first recorded inroad of the Danes in any part of England is placed in Northumberland in 789; but it was not till the latter years of the reign of Egberht that their incursions became formidable, at least in southern England. They plundered both in Kent and in Wessex, and they leagued themselves with the West-Welsh to meet a common defeat at the hands of the Bretwaldas.

The actual settlements did not begin till the reign of Æthelred. In 870 the Danes, after ravaging various parts of Northumberland and Mercia, and setting up a puppet king in Bernicia, occupied East-Anglia, whose king, the famous local saint Eadmund, died a martyr. Then came their first great invasion of Wessex, and the battles of the last days of Æthelred and the first days of Ælfred. Then (874–888) Northumberland and Mercia came altogether into the power of the Danes. For a moment they overran Wessex itself, and the realm of Ælfred was confined to the Isle of Athelney. But the

spirit of the great king never failed, and that of his people rose again. The Danes were driven from Wessex, and the peace of Wedmore settled the relations between the West-Saxon king and the Danes of East-Anglia. A line drawn from the northwest to southeast divided Mercia into two parts. The southwestern fell to the West-Saxon, the northeastern to the Dane. The Danish king Guthrum embraced Christianity, and became a precarious and dangerous vassal of the West-Saxon overlord. His actual kingdom lay in East Anglia; the chief power in Danish Mercia lay in the confederacy of the five boroughs, Lincoln, Leicester, Nottingham, Derby, and Stamford. In all these the Danish settlers seem to have formed a patrician order, holding the English inhabitants in bondage. Deira, with York for its capital, formed a Danish kingdom. In Bernicia English princes still reigned under Danish overlordship. In a large part both of Northumberland and Mercia, the land was divided among Danish owners, and not a few places received new Danish names. It might have seemed that the Danish conquest of more than half England was only less thorough than the English conquest of Britain itself.

The first half of the tenth century thus gave the West-Saxon kings a position in Britain such as no English kings of any kingdom had held before them. Dominant in their own island, claiming and, whenever they could, exercising a supremacy over the other princes of the island, their position in the island world of Britain was analogous to the position of the Western emperors in continental Europe. It was in fact an imperial position. As such it was marked by the assumption of the imperial titles, *monarcha*, *imperator*, *basileus Augustus*, and even *Cæsar*. These titles were meant at once to assert the imperial supremacy of the English kings within their own world, and to deny any supremacy over Britain on the part of either of the lords of the continental world. When we remember that some, both of the Teutonic and Celtic princes of Britain, had been the men of Charles the Great, the denial of all supremacy in the Cæsars of the mainland was not needless. Indeed that denial was formally made over and over again at various times down to the reign of Henry VIII.

This period of war and conquest was also a period of legislation and intellectual advancement. In Ælfred we have the noblest name in all English history, the name of him who united more and more varied virtues than any other recorded ruler. The captain of his people, he was also their lawgiver and their teacher. His laws, the first that can be called a code, laws drawn up by himself and then submitted by him to the approval of his Witan, mark, as we have seen, when they are compared with those of Ine, a time when the distinction of Englishman and Briton had passed away from the West-Saxon kingdom. They are remarkable also for the great mass of scriptural and other religious matter which is brought in whole into their text. The laws of Edward, of Æthelstan, and of Eadmund follow, and among them we have the text of the treaty between Ælfred and Guthrum, the earliest diplomatic instrument in our language. In all these laws we may trace the growth of the various new ideas which have been already spoken of as having gradually made their way into the older Teutonic system. The king grows greater and greater.

In literature this was a time which saw nothing short of the beginning of English prose. For a long time, as we have seen, the special home of learning and culture in England was in the north. Wessex had her scholars too, King Ine's kinsman Ealdhelm at their head; but the land of Bæda took the lead. In the confusions of

the latter years of the eighth century the light of Northumbrian learning seems to have died out; yet even at the time of Ælfred's accession the great king places the greatest lack of learning south of the Thames. In the interval of peace between the wars at the beginning and the wars at the end of his reign, Ælfred largely devoted himself to wipe out this stain. He was himself the first English prose writer on a great scale; but his writings, in accordance with the modest and practical bent of his mind, were no displays of original genius, but translations, or rather paraphrases, of such Latin works, both on divine and on secular subjects, as he thought were fitted for the improvement of his people. But above anything that Ælfred wrote himself stands the really greatest literary work of his reign, the beginning of the English Chronicle as it now stands. The fragmentary chronicles of earlier times were put together; the history of Bæda and the records of other lands were pressed into the service; the work became contemporary in the minute and brilliant narrative of Ælfred's own reign. From his day it goes on, sometimes full, sometimes meager, sometimes a dry record of names and dates, sometimes rising to the highest flight of the prose picture or of the heroic lay, but in one shape or another never failing us, till the pen dropped from the hand of the monk of Peterborough, who recorded the coming of Henry of Anjou. We, and we alone among the nations of Western Europe, can read our own story from the beginning in our own tongue in which we were born. But it must be borne in mind that, as we go on, we shall find that the English Chronicle is not one chronicle but many. The record which began at the beginning of Ælfred was in the eleventh century continued in various monasteries, and the later parts of the several copies must be looked on, not as copies of a single work with some places where they differ, but as separate works which have some matter in common. The tale is told in different ways, with much difference of local feeling and even of political creed. The different chronicles stop at different periods. That of Peterborough, as we have hinted, stops suddenly in 1154.

England under Ælfred was a land where foreign merit was welcome, as under Charles the Great English merit had been welcome in other lands. The Briton Asser, the Old-Saxon John, the Frankish Grimbald, received at the West-Saxon court the same reception which Ealhwin had met with at the hands of the mighty Frank. Learning now prospered; the monasteries were schools; but the native tongue flourished also. Of the wars of Eadward and Æthelstæd the Chronicle gives us a full military narrative; in the following reigns the prose entries are meager, but we get in their stead the glorious lay of Brunanburh and the shorter song of the deliverance of the Five Boroughs. Toward the end of our present period, Dunstan, the great statesman, began to appear as an ecclesiastical reformer. His name is connected with the movement of the last half of the tenth century for enforcing a stricter discipline on the monasteries and for substituting monks for secular priests in many cathedral and other churches. The English clergy, even those who formed collegiate bodies, were fond of the separate, and not uncommonly married, life of the secular priest. This supposed laxity now gave way in several episcopal churches to the strict Benedictine rule. Hence came the usage, almost but not quite peculiar to England, by which the bishop had, as his diocesan council and the ministers of his own special church, a body of men who had professedly renounced all the affairs of this world. That Dunstan shared in this movement there is no doubt. But it would be hard to show from real history that he was foremost in the movement; and it is far more

certain that no merely ecclesiastical reform was the foremost object in Dunstan's policy. The unity and the greatness of England were the first objects of the statesman whom Glastonbury gave to England.

Under Eadred the unity of England was formed. On his death the newly-built fabric seemed to break in pieces. The days of the grandsons of Ælfred, like the days of his brothers, were days when brothers succeeded one another after short reigns, and died for the most part childless. When Eadred died, there was no other son of Eadward the Unconquered to succeed him; nor does there seem to have been in the more distant branches of the royal family any one likely to command the unanimous voice of the nation. For a man who, though of kingly descent, was not the son of a king to come forward as a candidate for the crown, would hardly have been endured, except in the case of one who held a commanding personal position, such as was held by no man in the realm save the mighty churchman. England had therefore more than once during this age to risk the woes which are denounced against the land whose king is a child. And the realm so newly united risked the dangers not only of minority but of division. The young sons of Eadmund, passed by according to ordinary rule on the death of their father, succeeded, for want of better candidates, on the death of their uncle Eadred. The elder, Eadwig, received Wessex as his immediate kingdom; the younger, Eadgar, reigned over Northumberland and Mercia as under-king. The division was followed by a period, short, confused, and obscure, but of the highest importance both on its constitutional and on its ecclesiastical side. The facts which stand out without doubt are that Eadwig was the enemy of Dunstan and that Eadgar was his friend; that in 957 the kingdom of England was altogether divided by the Mercians and Northumbrians declaring their under-king Eadgar full king in his own right; that in 959 the kingdom was again united by the death of Eadwig and the succession of Eadgar to the whole realm. But the causes which immediately led to these events are told with every kind of contradiction; the characters of the actors are painted in the most opposite colors. It is clear, however, that with the accession of Eadgar the party of the monks triumphed. It is clear, also, that under Eadgar's rule the land enjoyed sixteen years of unparalleled peace and of unparalleled prosperity.

Again the immediate royal family contained none but minors, the two sons of Eadgar, Eadward, and Æthelred. As far as we can see, Æthelred was supported by the party of the monks and Eadward by their enemies. Dunstan therefore distinctly sacrificed his party to his country when he brought about the election of Eadward, the elder of the boys, whose minority would therefore be the shorter. His short reign (975-979) was ended by his murder, done, there can be little doubt, at the bidding of his step-mother, Ælfthryth, the Elfrida of romance. Her young son, Æthelred, then entered on the saddest and most shameful reign in our annals. His time of thirty-seven years (979-1016) forms the most marked contrast to the short and vigorous reigns of the heroes who opened the century. For the first nine years of this unhappy time, Dunstan still lived; he was taken away before the fullness of evil came. The main feature of this time is the renewal of the Danish invasions, which, after some years of mere plundering incursions, take their third form, that of a distinct political conquest, the establishment of a Danish king on the throne of all England. The constitutional lesson of this time is that, limited as the powers of an English king were by law, incapable as he was of doing any important act without the consent of his

Witan, the difference between a good and a bad king was something which words cannot set forth. It was for the Witan to pass decrees; but it was for the king to put them in force; and under Æthelred nothing good ever was put in force. The unready king—that is the king without *rede* or counsel—seems to have been incapable of any settled or vigorous plan of action. The successive advisers of Æthelred appear as a succession of traitors, who sold him and his kingdom to the enemy. The last of them, Eadric, whom Æthelred made Earl of the Mercians, and married to one of his many daughters, plays the chief part in the revolution which in the end placed the Dane on the English throne.

The staple, then, of the history of this time is foreign warfare, and that mostly warfare which takes the shape of invasion of England. But this time is marked also by foreign intercourse of another kind, intercourse which may at the time have seemed of no great importance, but which helped, together with the Danish invasions, to lead the way to greater events than the Danish conquest itself. English political intercourse with other lands had hitherto been mainly with the Franks in Germany and Gaul, and with their successors in Germany, the Saxon emperors. In the course of the tenth century, the new powers of France and Normandy had sprung up in what had been the western or Gaulish part of the Frankish dominion. The king of the French, at Paris, was cut off from the sea by his vassal the duke of the Normans at Rouen. While Normandy was a practically independent State, there could be hardly any dealings, in war or in peace, between England and France. But it was through its connection with Normandy that England became entangled in the affairs of France, and the connection between England and Normandy begins under Æthelred. England and France might doubtless in the end have become rival powers in some other way; but the way in which they actually did become rival powers was through a chain of events of which we have now reached the beginning. Two quarrels between Æthelred and the Norman duke, Richard, were ended by a peace and a marriage (1002) between Æthelred and Richard's daughter Emma. Here was the beginning of the causes which led to the Norman Conquest. Emma brought with her Norman followers, some of whom were trusted with commands in England. The kindred between the ruling families of the two lands, which came of the marriage of Emma, led to increased intercourse between Normandy and England, to Norman interference with English affairs, to the settlement of Normans in England, to the claims of Duke William, and to the Norman Conquest. When Normandy and England were under a common sovereign, France became in some sort a neighbor and an enemy of England. The rivalry between Normandy and France led to a rivalry between England and France, and that rivalry went on after France had swallowed up Normandy. Thus not only the Norman Conquest, and the internal changes which followed it, but the French wars of the fourteenth and fifteenth centuries, and the long abiding enmity between Englishmen and Frenchmen, have their direct source in the events of the reign of Æthelred.

This last series of Danish invasions began, in the form of mere plundering incursions, in 980. In 991 a formidable invasion, Norwegian rather than Danish, and in which the famous Norwegian king Olaf Trygvesson seems to have had a share, was marked by two opposite events, each alike characteristic of the time. Brihtnoth, the ealdorman of the East-Saxons, died with his thegns around him in the fight of Maldon, and his fall is recorded in one of the noblest of Teutonic battle-songs. Æthelred's earl, as he calls himself in the song, met the

invaders with steel; but Æthelred himself had no arms but gold. The year of Brihtnoth's death was the very one in which the invaders were for the first time bought off with money. In 994 came a great joint invasion under the two kings of the north, Olaf of Norway, and Swegen of Denmark.

This Danish conquest of England, taking the form of a forced election of the conqueror, is something widely different, alike from mere plundering incursions and from mere local settlements. It shows that we have got into the age of great powers. The king of an established kingdom adds another crown to the one which he has already, and strives to give his conquest an outward show of legality. Swegen's conquest is in this way almost a literal foreshadowing of the more famous conquest of William. But Swegen's conquest was only for a moment; he died the next year; his Danish host chose his younger son Cnut as his successor; the English Witan voted the restoration of Æthelred. In Denmark, it must carefully be marked, Swegen was succeeded by his elder son Harold. Cnut was chosen king over England only. A Danish dynasty was to reign in England; it was not yet ruled that Denmark and England were to have a single king. The war was now renewed between Cnut and Eadmund, surnamed Ironside, one of the younger sons of Æthelred. Englishmen had again a hero at their head, and, under his guidance, the whole state of affairs was changed. In the midst of this second war, in 1016, Æthelred died. A double election took place; Cnut and Eadmund were chosen to succeed by two distinct bodies of the English Witan. Eadmund, it would seem, was chosen, at such a moment, over the head and with the consent of his elder brother Æthelstan. A series of battles followed, in which Eadmund had decidedly the upper hand, till the last fight at Assandun, that is, Ashington in Essex, was lost by the treason of Eadric. The kingdom was divided; Eadmund took the south with a formal supremacy; Cnut took the north. The division was hardly made when Eadmund died mysteriously, by the practice of Eadric, as men deemed. And now another and final election gave Cnut the crown of the whole realm.

The position of Cnut, both as a man and as a king, derives a special interest from his being a convert to Christianity. His father Swegen was an apostate. He had been baptized in his childhood or youth; but he cast aside his new faith, and carried war into England as a heathen conqueror. His son Cnut was baptized in the course of his English wars, and he appears in English history as a Christian king, a devout king, a special favorite of the Church and her ministers. His laws are strong on all ecclesiastical points, and they contain — what was needful in his day, but which had not been needful, in Wessex at least, for some ages — a crowd of provisions for the suppression of heathen worship. In Denmark he appears as completing the conversion of that kingdom which had already begun. His newly born religious zeal led him, like Æthelwulf, to make the pilgrimage to Rome. His reception there by the Pope, the emperor, and the Burgundian king, helped to raise the position of England and her sovereign in foreign eyes; but it had no other political result.

The relations between England and Normandy now get closer and more important. Æthelred had found shelter in the Norman court with his brother-in-law, Duke Richard. The young Æthelings, Ælfred and Eadward, the sons of Æthelred and Emma, were brought up at the court of their uncle. But, strange to say, their mother Emma entered into a second marriage with Cnut himself, who must have been many years younger than she was. With Richard of Nor-

mandy Cnut kept unbroken peace; but Richard's more adventurous son Robert asserted the rights of his cousin and threatened — perhaps attempted — an invasion of England on their behalf. Robert presently died on his famous pilgrimage. In the same year (1035) Cnut himself died, still in the prime of life, after a reign of only eighteen years from his final election.

Such a dominion as the northern empire of Cnut was in its own nature ephemeral. Such a power can hardly endure beyond the life of its founder. The dominions of Charles the Great, geographically continuous and bound together both by Roman and by Frankish traditions, could not be kept under one ruler. Much less could the scattered empire of great islands and peninsulas which Cnut had brought under his power. Not only did his empire break in pieces, but his kingdom of England was again, for the last time, divided. Of his empire he himself had decreed the partition. He had in some sort begun it in his lifetime. His sons had been sent to reign as under-kings in Denmark and Norway. As his successor in England he named Harthacnut, his son by Emma, who at his death was under-king in Denmark. But the succession to the English crown was disputed. Godwine and the West-Saxons asserted the claims of Harthacnut, according to his father's will. Mercia and Northumberland declared for Cnut's doubtful or illegitimate son, Harold. A civil war might have been looked for; but a decree of the Witan divided the kingdom between the two candidates. Harthacnut, now king of the West-Saxons, tarried in Denmark, and left his English kingdom to the care of Emma and Godwine. Now, and not under Cnut, the West-Saxon realm seemed to be dealt with as a province of Denmark. The offended subjects of Harthacnut voted the deposition of their non-resident king, and the crown of the whole realm passed to Harold. Since that day England has been a united kingdom. Its crown has often been disputed and struggled for in arms; but every claimant has been a claimant of the whole kingdom. The division of England between two kings has never been seriously proposed since the deposition of Harthacnut. The very thought of such a thing had altogether passed out of men's minds before the end of the century with which we are now dealing.

The divided reign of Harold and Harthacnut was marked by an event which is told in as many and as contradictory shapes as any event in our early history. But it is certain that Ælfred, the elder of the two Æthelings who were living in banishment in Normandy, came over to England to make an attempt on the crown. As Ælfred landed on the south coast, his immediate design must have been on the kingdom of Harthacnut; but he came, in some way or other, into the power of Harold. His Norman companions were put to cruel deaths; the Ætheling himself was blinded, and died soon after. Such dealings are quite contrary to either the English or the Norman practice of the age. It shows that the son of Cnut, unlike his father, retained the full spirit of a Scandinavian pirate. That Earl Godwine had a share in the crime was rumored in his own day; but, as the tale is commonly told, it is absolutely impossible. If his guilt was asserted by some, it was carefully denied by others; he was tried on the charge, and was solemnly acquitted; and, in the state of our evidence on the subject, he is entitled to the benefit of that acquittal. The reign of Harold was short. On his death, in 1040, Harthacnut was chosen to the whole kingdom. A son of Emma, therefore a half brother of the surviving Ætheling Eadward, he sent for that prince to his court. But Harthacnut proved as worthless and brutal as Harold, and his reign, like Harold's, was short. On his death, in 1042, the Eng-

lish nation were thoroughly tired of Danish rule. The memory of Cnut could not outweigh the infamy of his two sons. There was still a Danish party, whose candidate was Swegen, the nephew of Cnut through his sister Estrith, a prince who afterward ruled Denmark with consummate prudence. But the English people had made up their minds to go back to the old kingly stock of the West-Saxons. In two distinct elections the nation chose the Ætheling Eadward, an unwilling candidate, recommended by his birth. But at such a moment English and kingly birth outweighed every other consideration. It should be also remarked that Eadward, like so many other kings, was chosen over the head of a nephew, who, according to modern ideas, was the direct heir. This was another Eadward, the son of his elder brother, Eadmund Ironside. But he was far away in Hungary, and none thought of him.

The election of Eadward was in some sort the beginning of the Norman Conquest. The English nation had chosen Eadward, who seemed an Englishman, rather than Swegen, who seemed a foreigner. But Eadward was in truth far more of a foreigner than Swegen. Born in England, but taken to Normandy in his childhood, he was in speech and feeling far more Norman than English. His monastic virtues won him the reputation of a saint and the title of Confessor, but no man could have been less fitted to wear the crown of England in such an age. His reign falls into two parts. Elected mainly by the influence of Godwine, Eadward married his benefactor's daughter, and raised his sons to earldoms. But the greatness of the West-Saxon earls was looked on with more or less jealousy by central and northern England, or at least by the earls who ruled over them. According to the division of Cnut, Northumberland was ruled by the Danish Siward, Mercia by Leofric, seemingly a descendant of the ancient kings of Mercia. Leofric himself was, as a party leader, eminently moderate and conciliatory; but the rivalry between his house and the house of Godwine formed a marked feature in the reign.

Meanwhile, the king himself filled every place that he could with Norman favorites, who plotted against Englishmen of every district and party. Above all, the king was under the influence of the Norman Robert, a monk of Jumièges, whom he raised successively to the bishopric of London and the archbishopric of Canterbury. The influence of strangers was now at its height; so was their insolence. Against the king's foreign favorites no justice could be had. Godwine and his sons took up arms in the cause of the nation (1051). He was induced to abide by the decision of a national assembly, by which he and his sons were banished. The power of the strangers now seemed secure. William, Duke of the Normans, a kinsman of Eadward through his mother, visited Eadward; and it was most likely now that Eadward made to him that promise of the succession to the crown on which William afterward founded his claim to succeed him. It seemed as if the Norman conquest of England had been already brought about without slash or blow. The king was Norman in feeling; he was surrounded by Norman courtiers; Normans and other men of French speech held high offices and great estates. The peaceful succession of the Norman duke to the English crown seemed far from unlikely. But all this was only on the surface. It is needless to show that a king of the English had no right to bequeath his crown. The utmost he could do was to recommend a candidate to the Witan, and their choice was, under all ordinary circumstances, confined to the royal house. William himself might doubtless see through all this; but his kindred to Eadward, the bequest of Eadward in his favor, worthless as either was

in point of English law, were advantages which he well knew how to turn to his own purpose.

A peaceful conquest of this kind, had such a thing been possible, would have been an unmixed evil. When the actual Norman Conquest came, its final results were on the whole for good. But that was because the violent overthrow of our national freedom did in effect breathe a new life into the nation. It called forth the spirit of Englishmen, and step by step we won back more than we had lost. But had the Normanizing schemes of the Confessor been carried out, the ancient freedom would have been undermined rather than overthrown; there would have been less to call forth the full strength of antagonistic feelings, and England might, without knowing it, have sunk to the level of continental states. It is therefore not only in the patriotic view of the moment, but in the longest-sighted view of general history, that we set down the return of Godwine and his sons in the year after their banishment as one of the great events of our history.

Godwine died the year after his return, and his place in the kingdom was taken by his son Harold. His policy was one of conciliation. The king was allowed to keep his personal favorites about him; but the Norman influence in public affairs was stopped. On the other hand, Harold cultivated the friendship of Germany, and many Lotharingian churchmen were promoted in England. The Welsh were now again formidable, having been united under a vigorous prince named Gruffydd ap Llywelyn. After some victories over other English commanders, the Britons were at last brought to more complete independence by Harold himself, in a war in which Gruffydd was killed by his own people. Earlier than this, the Northumbrian Earl Siward had overcome Macbeth, and had restored the Scottish crown to Malcolm, the heir of the former kings.

England thus, under the administration of Harold, held a high place at home and abroad. Still there were several sources of weakness, all of which the Norman knew how to make use of. When the Norman Archbishop Robert was deposed and banished, his English successor, Stigand, was looked on at Rome as a usurper of the See. In the early years of Eadward, Roman influence had greatly grown in England, and the canonical scruple about Stigand's appointment was shared by many at home. And when at last Harold procured the acknowledgment of Stigand from Pope Benedict X., matters were only made worse; for Benedict himself was presently declared to be a usurper. It was of more importance still that Harold himself was alleged to have entered into some personal engagements with Duke William. The tale, which comes to us only from the Norman writers, is told with so much contradiction that it is impossible to get at the exact truth. The Normans gave out that Harold was sent by Eadward to announce his bequest of the crown to William, that he did homage to William, engaged to marry his daughter, and promised to promote his succession at Eadward's death, and to give him immediate possession of the Castle of Dover. This tale is altogether impossible; but it is very likely that Harold was shipwrecked on the shore of Ponthieu and imprisoned by its Count Guy; that he was released by the interference of Duke William; that, in return for this favor, he helped him in his war with the Bretons; that he promised—though an older man than Duke William—to marry his daughter; and that he did an act of formal homage to his intended father-in-law and temporary military commander.

While these sources of danger were growing up abroad, a third source was growing up in England itself. The rivalry between the West-Saxon and the Mercian,

between the house of Godwine and the house of Leofric, went on. The character of Leofric himself is without stain; but his son Ælfgar did not scruple to ally himself with the Welsh against England. Outlawed and resented, he held his father's earldom of Mercia till his death, when it passed to his son Eadwine. But, in the latter days of Eadward, all the rest of England was under the government of the sons of Godwine. Of these, Tostig had succeeded Siward in Northumberland. He was a personal favorite of the king, and his appointment may well have been King Eadward's own act. In the last year of Eadward's reign the Northumbrians deposed Tostig, and chose as their earl, Morkere, the brother of Eadwine. Rather than plunge the country into a civil war, Harold confirmed the choice of the Northumbrians. Tostig went into foreign lands to complain of his brother, and to plot against his country. Harold thus drew on himself the enmity of his brother, without winning the gratitude of the sons of Ælfgar.

Such were the threefold dangers which threatened England when Eadward died, January 5, 1066, while the Witan were assembled at Westminster for the Christmas feast. Eadward was childless, and the question of the succession must have been in men's minds during the whole of his reign. That he promised the crown to William at the time of the duke's visit is, as we have seen, very likely. But such thoughts passed away under the administration of Harold. Eadward sent for his nephew Eadward from Hungary, clearly designing him as his successor. The younger Eadward came to England and died. He left two daughters, and a son Eadgar, young and of little promise, who was at Eadward's death the only male left in the royal family. In such a strait, it was needful to look for a king beyond the royal family. Eadward on his death had recommended Harold to the choice of the electors, a recommendation which was willingly accepted. Harold was chosen and crowned, taking care to avoid any question as to the validity of the crowning rite, by having it performed, not by Stigand, but by Ealdred, Archbishop of York. The Northumbrians for a moment refused to acknowledge the election of the new king; but he won them over by his presence and the eloquence of his friend Wulfstan, Bishop of Worcester. It was most likely at the same time that he tried to win the northern earls to his side by a marriage with their sister Eadgyth. This was a direct breach of his promise to William; and, as Eadgyth was the widow of Gruffydd of Wales, this last fact was made a further charge against him by the Normans.

Of the lawfulness of Harold's succession, according to the English law of the time, there can be no doubt. He was nominated by the late king, regularly chosen, regularly consecrated. The Witan had always exercised a free choice within the royal house, and the same principle would justify a choice beyond the royal house, when the royal house contained no qualified candidate. Minorities had been endured after the death of Eadred and after the death of Eadgar. But then the only man in the land who held at all the same position as Harold now did was the churchman Dunstan. In fact the claims of Eadgar do not seem to have been put forward at the time. They begin to be heard of at a later time, when the notion of strict hereditary right was growing. When Harold is blamed at the time, it is not for disregarding the hereditary right of Eadgar, but for breaking his own personal engagement to William. Whatever was the nature of that engagement, its breach was at most a ground of complaint against Harold personally; it could give William no claim as against the people of England. According to English law, William

had no shadow of claim. But, by artfully working together a number of points which had no real bearing on the matter, he was able to make out a plausible case in lands where English law was unknown. His kindred to Eadward, the alleged bequest of Eadward, the alleged perjury of Harold, the alleged wrong done to Archbishop Robert and the other Normans, were able to be worked into a picture which gradually won supporters to William, first in his own duchy, and then beyond its bounds. His own subjects, who at first listened but coldly, were before long stirred to zeal in his cause. Foreign princes encouraged him, to the Roman See above all it was the best of opportunities for winning increased power in England. Pope Alexander II., under the influence of his archdeacon, Hildebrand, afterward the renowned Pope Gregory VII., approved of William's claims. He was thus able to cloak his schemes under the guise of a crusade, and to attack England alike with temporal and spiritual weapons.

Thus doubly armed, the Norman duke set forth on his enterprise against England. He had not a single partisan in the country; but Tostig, the banished Englishman, was indirectly doing his work. For Tostig William was too slow; he betook himself to Harold Hardrada, the famous king of Norway, and either stirred him up to an attempt on England or joined him in an attempt which he had already planned. Harold of England was thus attacked at once by two enemies, either of whom alone it might be hard to overcome. The Norwegian came first; he landed in Yorkshire, defeated Eadwine and Morkere at Fulford, and on September 24th, received the submission of York. Harold of England on the morrow overthrew the Norwegian invader at Stamfordbridge. Three days later the Normans landed at Pevensey; the English king marched southward; the northern earls kept back their forces, seemingly in the hope of a division of the kingdom. On October 14th, Harold, at the head of the men of Wessex, East-Anglia, and part of Mercia, met William and his host on the hill of Senlac. After a hard-fought struggle, the Normans by a stratagem made their way on to the hill; the king was wounded by an arrow and cut down by four Norman knights, and his personal following was slaughtered around him. The first step in the conquest of England was thus taken; but the work was far from being done. After the fall of Harold, William had never again to fight a pitched battle; the land was without a leader, and therefore without union. Local resistance was often valiant; but it was only local resistance, and the land was conquered bit by bit.

On the death of Harold, the Witan in London chose Eadgar to the vacant throne. But the Mercian earls failed him, as they had failed Harold; and their treason hindered any general national resistance. Before the end of the year, the newly chosen king and a large body of the chief men of the realm found it expedient to submit to the invader. He had then subdued the shires south of London, whose forces had been utterly cut off at Senlac; he had crossed the Thames and threatened the city from the north. He was now chosen king and crowned at Westminster on Christmas Day.

In 1067 William visited Normandy, and the oppression of his lieutenants, his half-brother Odo, Bishop of Bayeux and Earl of Kent, and William Fitz-Osbern, Earl of Hereford, stirred up revolts in Kent, and in Herefordshire. The Kentish revolt took the strange form of an alliance with a foreign prince, Eustace, Count of Boulogne, who had been himself in William's service in his invasion. In Herefordshire the movement was more strictly national, though its chief, Eadric, sur-

named the Wild, who had never submitted to William, did not disdain an alliance with his Welch neighbors. Eadric in fact held out till a much later time; but the Kentishmen with their foreign allies were subdued before William's return. At the end of the year the king came back, and with the beginning of the next year he betook himself to the conquest of what was still unconquered. His first march was toward the west, where Exeter and the whole of western England were still independent. They were first subdued in the spring of 1068. After a revolt in the next year, after two attempts in successive years on the part of Harold's sons, western England was finally subdued in the course of 1069. Northern England, as far as the northern boundary of Yorkshire, was first conquered in the autumn of 1068. An attempt on Durham in January, 1069, was defeated. York and the North generally revolted more than once. In September, 1069, Sweegen of Denmark sent a great fleet to the help of the English, who were under the leadership of Eadgar, Walthof, the son of Siward, Earl of Northampton and Huntingdon, and the other northern leaders. But in the course of the winter of 1069-1070, the whole of northern and central England was finally conquered, Chester being the last point to hold out. After this time there were local revolts, but no very general resistance of any large part of the country. Early in 1070, William reviewed and dismissed his army at Salisbury. At the Easter feast of the same year, being now full king over all England, he was again solemnly crowned by legates from Rome.

But from the very beginning of William's conquest the northern frontier was a source of the deepest anxiety. The banished English, and specially the royal family, found shelter at the Court of Malcolm of Scotland, who married Margaret, the sister of Eadgar. Under cover of asserting their rights, Malcolm cruelly ravaged Northern England. But in 1072 William himself entered Scotland and received the homage of Malcolm at Abernethy. He had thus succeeded to the empire, as well as to the immediate kingdom, of his West-Saxon predecessors. In the next year he employed English troops on the continent in winning back the revolted County of Maine. In 1074 he could afford to admit Eadgar, the rival king of a moment, to his favor.

A revolt which took place in 1075 only showed how firmly William's power was established, and how little disposition there was on the part of the English to rise against him. Two of his own earls rose against him.

The last eleven years of William's reign are far richer in continental than in English events. He was engaged in wars with his French and Breton neighbors, and with his rebellious eldest son, Robert. In England, a Danish invasion in 1075, in concert with the revolt of the earls, led to a sack of York, and to nothing further. In 1080 Walcker, Bishop of Durham and Earl of Northumberland, was killed in a popular tumult. A revolt it could hardly be called; but it was cruelly punished by the king's brother, Bishop Odo. After this we do not hear of so much as a tumult. In 1080 an invasion from Denmark was again threatened by the Danish King Cnut. His enterprise was stopped by his death by the hands of his own subjects, which won him, somewhat strangely, the honors of martyrdom and the title of a saint. The next year, 1087, William himself died of an accidental hurt received while burning the town of Mantes in warfare with his neighbor and lord, Philip, King of the French.

The Conqueror was now gone, but the tale of the Conquest is not quite over. One more act of the drama is still to be told before we stop to consider the nature, the cause, and the results of this wonderful revolution. By the dying will of William, Normandy passed to his

eldest son, Robert; England he wished to be the portion of his second son, William. William, surnamed the Red, was acknowledged and crowned without opposition. In the next year (1088) almost the whole of the Norman nobles rebelled on behalf of Robert. The king appealed to his English subjects. By their valor, seconded by the loyalty of the bishops, the Norman revolt was put down, and the crown of the Red King was made safe. This was the last time that Normans and English, as such, met in arms on English soil. The work of the Conquest had been so thoroughly done that it could bear in a certain sense to be undone. The conquest made by the Normans had been so thorough that it was not disturbed even by English victories over Normans. Within twenty-two years after William's landing, his son, the second Norman king, owed his crown to the support of the native English against his own countrymen. Signs of distinction and jealousy between the two races may be discerned for some time longer; but the last open warfare between them was when the English defended the throne of William Rufus against his Norman rebels.

Under the sons of the Conqueror England appears for the first time in her new European character. Looking at her simply as a power, without regard to the nationality of her inhabitants, she now appears as an insular power making conquests on continental ground. William Rufus, placed on the throne by the English people in opposition to a Norman revolt, broke all his promises of good government, and ruled as one of the worst tyrants in all history. But it would be hard to show that he was an oppressor of Englishmen as Englishmen. His rule was rather a tyranny which pressed on all classes and all races, though the native English would doubtless be the class which felt it most bitterly. Godless and vicious beyond all parallel before or after, he was still a captain and a statesman, and no king better knew how to make use of every art to advance the power of his kingdom. He won a large part of Normandy by force of arms; and, when his brother Robert set forth on the crusade, he obtained the whole duchy under cover of a mortgage. Maine revolted and was won back; a purchase of Aquitaine was negotiated; Rufus was believed to have designs on the crown of France itself. A short war was waged between Rufus and Philip of France, a war which now begins to put on the character of a war between England and France, rather than that of a mere war between the Duke of the Normans and his overlord at Paris. The wealth and strength of England now for the first time directly told in continental affairs. But the schemes of the Red King were cut short by the stroke of an arrow in the New Forest (August 2, 1100). By an agreement between William and Robert, if either died childless, his brother was to succeed to his dominions. But at the death of Rufus, Robert was far away on the crusade, and the English nation had never paid much heed to any attempts to settle the succession of the crown before a vacancy. Henry, the youngest son of the Conqueror, the only one of his sons who was the son of a crowned king and born on English ground, was unanimously chosen and speedily crowned. An Englishman by birth, if not by descent, he further married a wife who had some English blood in her veins, and who, in the eyes of his subjects, passed for an Englishwoman. This was Edith, the daughter of Malcolm of Scotland, who at her marriage took the Norman name of Matilda. The English king and the English queen were mocked at by the Norman courtiers, who again conspired to bring in the Norman duke. Again a son of the Conqueror owed his crown to English loyalty. A second Norman invasion of England fol-

lowed. Robert landed at Portsmouth, as his father had landed at Pevensey, but the policy of Henry found means to send him and his host away without fighting (1101). One of the usual agreements was made, an agreement which had little chance of being kept, by which again each brother was to succeed to the dominions of the other in case of the failure of direct heirs. But Robert was incapable of ruling his own dominions; a party in Normandy invited the king of the English to save the duchy from anarchy. Two campaigns, ending in the great fight of Tinchebrai (1106), brought Normandy into the hands of Henry. Men at the time looked on the day of Tinchebrai as the reversal of the day of Senlac. Normandy was conquered by England, as England had before been conquered by Normandy. Such a view put forth only one side of the case; but from one side it was true.

King Henry died in 1135, leaving, as he deemed, the succession to his daughter and her young son, Henry. As usual, an arrangement made before the vacancy was set aside, and the choice of England fell upon Stephen. The case of the new king's election was not unlike the older and more famous case of the election of Harold. In itself it was perfectly good. Against it stood the fact that Stephen had, with the rest of the chief men, sworn to the succession of Matilda. Stephen then was a perjurer as regarded his own soul; he was no usurper as regarded the nation. He was accepted without opposition, and King Henry's son Robert did homage to him with the rest. But Stephen, a man of many winning personal qualities, was utterly unable to reign in those times. Rebellions broke out; Earl Robert asserted the rights of his sister in England, and Normandy was conquered by her husband Geoffrey. The empress landed in England (1139); she was chosen Lady (1141) — the name Queen was not used; but she was never crowned. A civil war, a time of utter anarchy and havoc raged, till (1153) another agreement of the usual kind was made between Stephen and Matilda's son Henry, now Duke of the Normans. He had been brought over to England as a child; he had taken his share in the wars; and it was now agreed that Stephen should keep the crown for life, and that Henry should succeed him. This time the agreement took effect. When Stephen died in the next year, Henry succeeded without opposition. Again a duke of the Normans succeeded to the crown of England; but Henry of Anjou, by birth-place Henry of Le Mans, was far more than duke of the Normans and king of the English. To the lands of his mother's father he added the lands of his father, Anjou, Maine, and Touraine; and a politic marriage gave him a greater dominion still. The designs of William Rufus upon the duchy of Aquitaine came to pass in another way. The great dominion of Southern Gaul, Poitou, Aquitaine, and Gascony, had passed to Eleanor, the daughter of their last duke. She married Lewis, the heir of the crown of France, who almost immediately succeeded to the kingdom (1137). For a moment France and Aquitaine, Northern and Southern Gaul, the land of *oil* and the land of *oc*, were joined together. It might seem that a kingdom of France, in the modern sense, was about to begin. But the northern king and the southern duchess did not agree. A canonical objection to the marriage was conveniently found, and it was accordingly annulled. The divorced queen at once married the young Duke of the Normans (1152). Her dominions came with her, and the prince who now succeeded to the crown of England already held the greatest power in Gaul, a power far greater than that of his nominal lord at Paris. With that dominion he won the undying hatred of the lord whose wife with her splendid heritage

had passed to him. The king of Paris was not yet to be master of Southern Gaul. He was to be again shut up in his inland dominion, while his mighty vassal held the mouths of the great rivers and the fairest cities of the land. As England under Cnut might seem to have become part of a Scandinavian empire, so under Henry she might seem to have become part of a Gaulish empire. The strictly Norman period of the English history comes to an end. Normandy and England have alike become parts of the dominions of a king who by female descent might be called either Norman or English, but who, both by birth and by general character, was neither Norman nor English. In ruling over a vast number of distinct states, widely differing in blood, language, and everything else, ruling over all without exclusively belonging to any, Henry II., king, duke, and count of all the lands from the Pyrennees to the Scottish border, was the forerunner of the emperor Charles V.

None of these three reigns was a time of great legislative changes, but the reigns of Rufus and Henry were the time in which the new system of administration grew up.

With the accession of Henry of Anjou a new period begins. The purely English period has ended. The Norman period has ended also; England and Normandy are alike under the rule of the cosmopolitan prince from Le Mans. Englishmen tried to see a native king in the man who sprang through three generations of females from the son of Eadmund Ironside. And Henry was too wise to refuse to listen. Whatever he was, he was not Norman, and under him the last traces of distinction between men of English and of Norman birth in England altogether died out. Of all the kings between the Conqueror and Edward the First, he has the best right to the name of lawgiver. He is not the author of any formal code; but he is the author of a greater number of actual enactments than any king before him. His reign falls naturally into three parts. The first is taken up with the restoration of order after the anarchy. To this work the young prince of twenty-one, who had already won a name beyond the sea, gave himself with a good will. He was helped in the work by one of the clerical statesmen of the age, Thomas, the son of Gilbert Becket of London, archdeacon of Canterbury and the king's chancellor. Thomas is one of the great examples of the fusion of Normans and English. Born in London of Norman parents, he appears throughout his career as a passionate lover of his native land and his native city. He was a favorite with the English people, nor is there a word to show that he deemed himself, or was deemed by them, to be other than their countryman in the fullest sense. King Henry and Chancellor Thomas worked hard for eight years to restore the rule of law. One great difficulty in their path was the new doctrine of the immunity of the clergy from secular jurisdiction. These years were a time of comparative peace, broken chiefly by a war (1159) with Lewis of France for the succession of Toulouse.

Thomas really died for the rights of the church of Canterbury, not for any more general principle. But the second quarrel, as could not fail to happen, got mixed up in men's minds with the first; and the murdered archbishop was looked on as a saint and as a martyr to the general privileges of the church. The dead martyr was a more dangerous enemy to the king than the living primate had been. We now enter on the third period of Henry's reign, a time of nineteen years, in which Henry had to struggle against foes on every side, but chiefly against foes that were of his own household. His overlord of France, his vassal of Scotland, his own nobles, his wife and his own children,

were all arrayed against him. As far as England was concerned, Henry was successful against all. The rebellion of the earls and the Scottish invasion (1174) both failed. On the continent his fate was harder. The death of his eldest son, the rebellion of the youngest, the loss of the city of his birth, utterly broke down his spirit. At the age of fifty-six he died (1189) at Chinon, far away alike from England and from Normandy, a worn-out and broken-hearted man.

The great lawgiver was gone, and his dominions passed to his rebellious son, Richard. This king has in popular belief become one of the heroes of England. That he should ever have been looked upon as such, that he should by strangers have been so looked upon even in his own time, shows how England had come to be looked on as the head and center of the vast dominion of her kings. Personally Richard, though born on English ground, was the least English of all our kings. Invested from his earliest years with his mother's Southern dominions, Richard of Poitou had little in him either of England or of Normandy; he was essentially the man of Southern Gaul. Twice in his reign he visited England—to be crowned on his first accession, and to be crowned again after his German captivity. The rest of his time was spent in his crusade, and in various continental disputes which concerned England not at all, except so far as she had to pay for them. The mirror of chivalry was the meanest and most insatiable of all the spoilers of her wealth. For England, as a kingdom, all that he did was to betray her independence by a homage to the Emperor, which formed a precedent for a more famous homage in the next reign. His reign is an important one in constitutional progress, but as such it was the reign of his ministers and not of himself. One event toward the end of his reign has been often misunderstood. A commotion was raised in London (1196) by William the son of Osbert, known as William with the Long Beard, a fellow-crusader and seemingly a personal friend of the king's. William professed to be the champion of the poor against the rich. Out of this romantic story grew that he was the champion of the English against the Normans. The writers of his own time show that he was deemed a martyr by his followers and a traitor by his enemies; but they gave no hint that he was the champion of one race against another. Nor do they give us any clue as to his own descent, English or Norman. There is not a word in any writer of the reign of Henry or Richard to make us think that the distinction between the two races was at all remembered in any hostile sense. Everything shows that all the inhabitants of the kingdom were fast drawing together, in opposition to men born out of the realm, whether in Normandy or anywhere else.

Richard died, as he had lived, far away from England and Normandy, in a petty quarrel with a Southern vassal (1199). Constitutional progress had gone on silently in his absence. In the next reign freedom had to be won openly from a tyrant by force of arms. No periods of our history, save those of the Conversion and the Conquest, are of greater importance than the seventeen years of John. A popular confusion has to be got rid of with regard to his accession at the death of Richard. John, the youngest son of Henry, was the only survivor of his brothers; but Geoffrey, the third son of Henry, had left a son, Arthur. Richard seems at one time to have designed Arthur for his successor. But his last bequest was in favor of his brother; and, even without that bequest, all English precedent was in favor of the brother rather than of the nephew. Arthur does not seem to have had a single partisan, either in Normandy or in England. John was received as duke, chosen and crowned as king, without opposition.

Henry III. succeeded as a national king, and a burst of national feeling drove the French out of the land. A long and weary time followed, in which the freedom of England was slowly growing up, till, fifty years later, the time came when it had to be again asserted on the field of battle.

No time is richer than this in legal history. The whole reign of Henry II. was a reign of legislation.

The reign of John is marked by common consent as the time from which Englishmen date the birth of their national freedom in its later form. From his day men no longer asked for the observance of the laws of Eadward. They asked for the observance of John's own charter, which was deemed to be nothing else than the laws of Eadward in a new shape. By that charter all the great principles of constitutional government were affirmed. They were so fully affirmed as to be in advance of the age; only a few years later men shrank from affirming them again with so clear a voice. Stephen Langton doubtless saw further than other men of his day; but, if in one or two points he claimed more than his generation was ready for, the great mass of his legislation took root at once, and so prepared men for the final acceptance of all a generation or two later. The charter is the first solemn act of the united English nation after Norman conquerors and Norman settlers had become naturalized Englishmen. Of distinction of race or law there is not a word. The one distinction drawn is that between freeman and villain, and even the villain has rights which the Charter protects. It ordains nothing new, except the temporary provisions for its own enforcement, provisions which give a legal sanction to the natural right of resisting a king who rebels against the law. Novel abuses are to be redressed; new means of redressing them are supplied; but the old law of England, the law of Eadward, the law of Henry, stands firm. But it is with the strictly constitutional provision of the Charter that we are here most concerned. Representation was already fast growing up; but it had hardly yet reached such a stage that it could be ordained in legal form. But rules are laid down out of which, even if it had not begun already, representation in the strictest sense could not fail shortly to rise. The distinction which had been growing up ever since the Conquest, and indeed before, between the *Witan* and the *Landsitting men* now receives a legal sanction. The practice of summons makes the distinction. Certain great men, prelates, earls, and greater barons, are to receive the personal summons. The rest of the king's tenants-in-chief are to be summoned only in a body. Here we have almost come to a separation of Lords and Commons. But in modern ideas those names imply two distinct houses; and it was not yet settled, it had not yet come into men's minds to consider, whether the national council should consist of one house or a dozen. But it is decreed in so many words that the acts of those who came would bind those who stayed away. On such a provision representation, and not only representation but election of representatives, follows almost as a matter of course. The mass stay away; a few appear, specially commissioned to act in the name of the rest. The Charter mentions only the king's tenants-in-chief; so far had things been marred and feudalized by the influence of the Conquest. But as the election could only be made in the ancient county court, every freeholder at least, if not every freeman, won back his ancient right. If he could not come himself to cry Yea or Nay, he at least had a voice in choosing those who could do so with greater effect.

The point in which the legislation of the Charter seems to have been in advance of the age was with regard to the power of the purse. The old threefold

burthen, the *trinoda necessitas*, seems, in the new feudalized state of things, to have given way to the three cases in which the lord might lawfully call on his man for an aid. These were his own ransom from captivity, the knightng of his eldest son, and the marriage of his eldest daughter. This right is allowed to the king; but he could call for money in no other case, unless it was voted to him by the national council. This was the old law, and in quite recent times both Thomas of London and St. Hugh, the Burgundian bishop of Lincoln, had, in full assembly, withstood exactions on the part of Henry and Richard. But, though both ancient law and modern precedent were for the clause, men were not ready for the direct assertion of its principle. The clause was left out at the later confirmations of the Charter, and the right was not again established till the end of the century. The provisions which were temporary were not the least important. Twenty-five barons were appointed to carry them out, and, to show the advance of municipal rights, among them was the Mayor of London. If the king broke his oath, they were to call the whole commons of the kingdom to their help, and to constrain the rebel king by force. When John again rebelled, his barons and people drew the sword against him, and they were but carrying out the letter of the law.

The main principles of constitutional government had thus been established; the old freedom had been won back in a new shape. England was England again. But the European position of England had altogether changed. The final outcome of Norman and Angevin rule in England had been to make England a European and a continental power, holding two Gaulish dependencies, the duchy of Aquitaine and the insular Normandy. But the vast extension of the Angevin dominions before they were thus cut short had brought England into connection with most parts.

Within the island world of Britain the power of England rose for a moment under Henry II., to a greater height than it had ever risen at any earlier time. Or we might say that another island world, less only than Britain itself, was brought into relation with the world of Britain, as the world of Britain was brought into relation with the world of Europe. The first Angevin king of England became the first English lord of Ireland. The connection between the two islands had been growing close for a long time. Shadowy tales are told of a dominion exercised by Eadgar and by Cnut on the eastern shore of Ireland. It is more certain that, under the two Williams and under Henry I., first the Danish settlers, and then the Irish themselves, entered into spiritual relations with the See of Canterbury which could hardly fail to grow into temporal relations with the crown of England. One Irish king was, if not the vassal, at least the attached friend, of Henry I. One of the first acts of Henry II., was to obtain a bull from the one English Pope, Hadrian IV., granting him the dominion of the island of Ireland. But the conquest of the new realm was begun only by private adventurers in 1169. For one moment, in 1171, the conquest seemed to be a reality. The Irish princes became the men of Henry, who presently granted the kingdom of Ireland to his son John. But in truth all that was done was to begin that long and dreary tale of half-conquests and local warfare which gave Ireland five centuries of greater wretchedness than England had endured in the first five years of Norman dominion. As if from a feeling how unreal the claim was, the kingly style granted to John was dropped by John himself; and, till the reign of Henry VIII., the king of England took from his precarious Irish dominion no higher title than lord.

On the Welsh frontier the endless warfare went on; but this cannot be called a period of conquest. The armies of Henry II. suffered at least one defeat at the hands of the Britons; and the contemporary writer John of Salisbury ventures to regret that England had not in his day a leader like Harold to guard her frontier. Under John we find the first connection by marriage between the ruling houses of England and Wales. A natural daughter of John was married to the Welsh prince Llywelyn. From this time the position of the Welsh princes changed, and they begin to play a certain part in the internal affairs of England. On the Scottish frontier Henry II. took back the earldoms of Northumberland and Cumberland, which had been yielded to David and his son. Presently the share taken by William the Lion in the revolt of the English barons was avenged in 1174 by his defeat and captivity, and by his acknowledgment of a supremacy of an altogether new kind on the part of the English overlord. For the first time, Scottish lords, as well as Scottish kings, did homage to Henry; and, for the first time also, Scottish castles were placed in his hands. But when the chivalrous Richard was selling everything, he sold back these newly acquired rights. The relations in which the kingdom of Scotland, the earldom of Lothian, and the territorial fief of what we may now best distinguish as Scottish Cumberland, stood to the English crown fell back to their former state, to form materials for a great controversy a hundred years later.

The next period in English history may be measured in different ways, according to the point of view from which that history is looked at. The English nation has now taken its later form. It has assimilated its Romance conquerors, and in so doing it has received a certain Romance infusion in language, laws, and manners. The connection with Normandy has made England a European power. The separation from Normandy has made England again an English power. The nation has now to struggle against a new form of foreign invasion. Englishmen, of whichever race, have to hold their own against the Poitevin and the Savoyard. They have to wage the long struggle of the thirteenth century at once against the king at home and against the Pope beyond sea. This time is marked by the reign of Henry III. But the time of struggle is also a time of constitutional progress, and under Edward I. the law and constitution of England put on the essence of their later form. Here then, in a purely constitutional view, is one of the landmarks of our history, a landmark to be placed alongside of the Conquest and the Great Charter. But our former landmarks, the Conquest, the accession of Henry II., the reign of John, were not merely constitutional landmarks, but landmarks in the history of England as a European power. This last the legislation of Edward I. can hardly be said to be. The next great European landmark is the beginning of the long wars between England and France. From the reign of John to the reign of Edward III., the foreign relations of England hold a secondary place as compared with her constitutional progress. There are frequent wars with France; but they are rather the wars of the Duke of Aquitaine than of the King of England. Under Edward III. a wholly new state of foreign relations begins. The rivalry between England and France, which had grown out of the older rivalry between Normandy and France and which had survived the separation of Normandy from England and its union with France, now becomes, for a hundred years and more, the leading feature in English history, one of the leading features in European history. In this European aspect, the period which follows the claim of a French prince to the crown of England comes to its natural end when a king of England claims the crown of France.

The reign of Henry III. was, down almost to our own day, the longest in our annals. The first forty years of it are, on the whole, the dreariest time in our history. No time of so great a length has so few events which stand out as prominent landmarks.

Henry died November 16, 1272. The reign of Edward was held to begin with his proclamation four days later; the doctrine that the king never dies is a later device still. Edward was then in Sicily, nor was his return a hasty one. He passed leisurely through several parts of Europe; he suppressed disturbances in his duchy of Aquitaine, and was crowned seventeen days after his arrival in England (August 19, 1274). Nothing could show more clearly than this how fast the office conferred by election and coronation was passing into the possession handed on by simple hereditary succession.

The reign of Edward which thus began is one of the most memorable in the whole course of English history. It is more than an accident that he was the first king since the Conquest who bore one of the ancient kingly names. Under him we feel at once that the work is done, that all traces of conquest, all traces of distinction of races, have passed away. We have again a united English nation, under a king English in name and in heart. For the first time since the Norman came, England has a king whose whole policy is thoroughly English, whose work seems in so many ways a falling back on the work of the old native kings, specially of the king whose name he bore. For the first time since the Conquest, we have a king who is neither surrounded by foreign favorites nor has his policy directed to foreign objects.

The change which followed when Edward II. succeeded Edward I., was only part of the general change which naturally followed on such a change of sovereign. The ruler, lawgiver, and conqueror had passed away, to make room for a son who inherited none of these characters. Legislation and conquest come to an end; constitutional progress becomes indirect. Edward II. was ruled by favorites; that his earliest favorite, Piers Gaveston, was a foreigner from Gascony doubtless tended to increase the usual dislike to favorites; but the fact was no longer of the same political importance as the predominance of foreign favorites had been in earlier times. There was no longer any fear of England again becoming the prey of the stranger. Still the reign of Edward II. is, in some respects, a repetition of the reign of Henry III. The national dislike to the favorite led to an opposition to the king, which in 1310-1311, brought about the practical transfer of the royal power—in imitation, it would seem, of the Provisions of Oxford—to a body of prelates and barons, called the Ordainers. The almost immediate recall of Gaveston, in defiance of the new ordinances, led to a new Barons' War, in which the king's cousin, Earl Thomas of Lancaster, appears rather as a parody than as a follower of the great Simon. We now reach the beginning of a series of political executions which have no parallel in earlier days, but which from this time disfigure our history for many centuries. The first blood shed was that of Gaveston himself in 1312. It was avenged ten years after by the execution of Thomas of Lancaster. Meanwhile the strife between the king and his barons had gone on. A second time, in 1318, the royal power was transferred to a council. Then came the choice of new favorites, the Despencers, father and son. They were at least Englishmen, bearing a name which had been glorious in former civil strife. But they were no less hated than the stranger Gaveston. In a moment of recovered power on the king's part follows the execution of Earl Thomas, a

martyr in the belief of his party no less than Simon himself. Presently Edward has to meet with foes, not only in his own house but in his own household. Dark and mysterious causes drew on him the deadly hatred of his own wife, and gave him a rival in his own son. In the revolution of 1326, the queen is the leader; the favorites die in their turn the death of traitors. The year 1327 opens with the practical assertion of the highest right which the national council in its new form had inherited from the earliest times. By a solemn vote of the Parliament of England the king was deposed, and his own son Edward was placed on the throne. In earlier times the deposition of a king in no way implied his murder, any more than the fall from power of a great earl or prelate implied either his murder or his legal execution. But the days of blood had now set in; before the end of the year the deposed king died by a foul assassination. The new king was still a minor, and the first years of his reign were the reign of his mother Isabel and her favorite Roger Mortimer. Another revolution was needed to break their power. In 1330, with the execution of Mortimer and the imprisonment of Isabel, the real reign of Edward III. begins.

The reign of Henry III. was a reign of constant parliamentary action, but it was not a time rich in legislation in the strictest sense. The most direct case of change in the law during Henry's reign was the abolition of the ordeal at its beginning. This led incidentally to further changes in judicial procedure, and it is one of the chief landmarks in the development of the jury system. But it is in itself not so much independent legislation as the application to England of a decree of a General Council of the Church. In short, the Parliaments of Henry III. are less famous for changing the law than for refusing to change it. The famous saying "*Nolumus leges Angliæ mutari*" dates from the Council of Merton in 1236, when the barons refused to agree to the proposal of the prelates for assimilating the law of England to the civil and canon law in the matter of children born before wedlock. By the former systems of jurisprudence, the subsequent marriage of their parents admitted them to the rights of legitimate birth. But the barons chose to maintain the harsher rule of the common law of England.

But, if the reign of Henry III. was not a time rich in legislation, it forms an important stage in the growth of our parliamentary life. The chief work of that reign was that the first steps were taken toward the practical establishment of the doctrine set forth in the omitted clauses of the Great Charter, the doctrine, in modern phrase, that the power of the purse belongs to Parliament. In Henry's day England and her Parliament had to wage a never-ending strife against her two enemies, king and Pope. The main duty of the nation was to withstand the extortions of both alike.

The change from the reign of Edward III. to that of Richard II. is in some points like the change from the reign of Edward I. to that of Edward II. The leading events again touch the internal rather than the external history. The internal history of the reign of Edward III. is of the highest importance. But it is of an importance wholly constitutional and social. It is not marked on the surface by any striking internal events. In the reign of Richard we have over again the same kind of internal events which mark the reign of Edward II., but with the addition of a great social struggle to which we have seen no parallel in earlier times. But, if there is much in common in the two reigns, there is a marked difference between the two men. Richard, if foolish and extravagant, was not weak; he had distinct political aims; he seems to have seriously designed the establishment of a despotic power in the crown. His

accession marks another stage in the growth of the doctrine of hereditary succession. Richard, the minor son of the Black Prince, succeeded his grandfather without opposition, without any public mention of any claims on the part of his uncles, the surviving sons of the late king. In fact the dissatisfaction which was shown at a vague rumor that the young king's eldest uncle John of Gaunt, Duke of Lancaster, had designs on the crown, shows how men's ideas on such matters had changed, not only since the days of Ælfred, but even since the days of John. In the reign which thus began foreign affairs become quite secondary. The wars both with France and Scotland go on, but they go on for the most part languidly; occasional raids alternate with truces. But the very beginning of Richard's reign saw an actual French invasion of England, in which the Isle of Wight was ravaged and Hastings burned. The French war was ended, as far as this reign is concerned, by Richard's second marriage with Isabel of France in 1396, which was accompanied by a truce for twenty-five years.

The short and troubled reign of Henry IV. has commonly led to forgetfulness of his earlier fame as a gallant and popular prince, a pilgrim to Jerusalem, a crusader in Africa and Prussia. The fourteen years of his reign are almost wholly filled with plots, civil wars, and the endless warfare in Scotland and France.

At the time of Henry's death, in 1413, there was a truce with Scotland; but the war in France, which had gone on during the whole of his reign, was being waged with a greater vigor than usual.

In 1406 the crown was settled by Parliament on Henry and his sons; and on his death, his eldest son, Henry, succeeded without opposition. A new era in the French war at once began. France, under its weak or rather mad King, Charles VI., was torn in pieces by the factions of Orleans and Burgundy. Henry IV. had, in the latter years of his reign, employed the policy of playing off one party against the other, and had given help to each in turn. The war, which had gone on, though mostly in a desultory way, ever since the return of the Black Prince to England, in 1370, now began again in earnest under a king who was one of the greatest of warriors and statesmen.

On August 31, 1422, Henry V. died, revealing the true object of his policy by his last injunction that in no case should peace be made, unless Normandy was ceded to England in full sovereignty. The infant son of Henry and Katharine, Henry VI., succeeded to the kingdom of England and the heirship of France. Two months later, by the death of his grandfather, the French king, he succeeded, according to the provisions of the treaty, to the Crown of France. His two kingdoms were intrusted to the regency of his two paternal uncles, England to Humphrey, Duke of Gloucester, and France to John, the Great Duke of Bedford. The babe was king at Rouen and Paris, and either king or sovereign lord at Bourdeaux; but in the intermediate land he had a rival in a third uncle, his mother's brother, Charles VII.

A time of thirty years follows, in which the English were gradually driven out of France and Aquitaine, till nothing was left of the old heritage except the Norman Islands, and nothing was left of the new conquests except Calais and its small territory.

The period of the Hundred Years' War was the time in which what we may call the growth of England came to an end. The nation in its later shape was fully formed at the end of the thirteenth century. The great lines of its later law and constitution have been already drawn. During the following period law and constitution have to take their perfect shape at home, and the nation, now fully formed, has to take its final position

among the powers of Europe. During this time England and the English people became essentially all that they have been ever since. The changes in later times have been great and important; but they have been changes of detail.

Wickliffe was the direct author of a religious change. He was indirectly, if not the author, at least the unintentional abettor, of a social and political change. His place in the history of English literature is at least equal to his place in religious and political history. He was the father of later English prose writing. Since the sudden close of the *Peterborough Chronicle*, English prose writing had never quite died out, but it had remained something quite secondary by the side of English verse. But in the fourteenth century the English language again won back its own place.

Thus, after the ups and downs of 300 years, English was now again the acknowledged speech of England, the one common speech of Englishmen of all ranks. But the ancient tongue, in winning back its ancient place, had greatly changed its ancient character. The two great changes in language which the effects of the Norman Conquest had rather strengthened than begun, the loss of inflexions and the constant introduction of foreign words, had had more and more effect as the speakers of the two tongues grew closer together, as the use of one or the other marked no longer a national but merely a social distinction. It would seem as if the failure of schemes of continental dominion on the part of England had driven Englishmen to spend their energies in biting and devouring one another at home. The fifty years after the final loss of Aquitaine form a time which, especially toward its end, is of much importance in other ways. But this feature of constant civil war, war waged to settle the disputed succession to the crown, is that which gives to the time its most distinguishing character. Wars with Scotland and with France go on very much as before. One year there is a raid; the next year there is a truce. But warfare of this kind is of little importance in a general view of the period. All hope of the conquest or serious dismemberment of either of the hostile countries has passed away. The origin of this great civil strife was to appearance purely genealogical. The claim of Roger, Earl of March, to succeed Richard II., by virtue of descent in the female line from an elder son of Edward III., showed the new doctrines in their extremest form. But all claims on this score had been set aside by the repeated acts of Parliament which gave the crown to Henry IV. and his heirs. No title could be better than that of the Lancastrian kings; and, amid the glories of the reign of Henry V., the genealogical fancy which was all that could be pleaded for the other family seems gradually to have been forgotten. But, just about the time of the loss of Aquitaine, a number of circumstances joined together to give a renewed importance to their claims. Those claims had now passed to Richard, Duke of York, who in the male line represented a son of Edward III., younger than John of Gaunt, but who in the female line represented the elder brother Lionel. The weakness of Henry VI., sometimes growing into absolute imbecility, was now manifest. His foreign queen and his ministers, the Dukes of Suffolk and Somerset, were unpopular on various grounds, especially on account of the losses in France. Duke Richard, on the other hand, was an able and popular nobleman, who had won reputation both in France and in Ireland. As long as Henry was childless, he might be looked on as heir-presumptive to the crown. The only possible competitor was the Duke of Somerset himself. Somerset represented a branch of the royal family which was of doubtful legitimacy, that of the natural children of John of Gaunt, who had been legitimated by Parliament, but

whose position as regarded the royal succession was not clear. In 1450 a popular insurrection under Jack Cade, who called himself Mortimer, might pass for a sign that the claims of that family were not forgotten. The Duke of Suffolk, impeached by the Commons, but not sentenced by the Lords, had been irregularly put to death. Somerset now remained as the unpopular minister, while Richard of York was the leader of a popular opposition. The birth of the king's only son in 1453 took away the duke's hope of a peaceful succession, and in 1455 the civil war began.

The war of York and Lancaster, like the great war with France, with its occasional lulls and truces, must be looked on as really lasting, notwithstanding reconciliations, restorations, and momentary reigns, from the time when the sword was first drawn against Henry VI. to the time when it was last drawn against Henry VII. One thing is to be noted throughout, that, after every revolution, a Parliament was always found ready to condemn the defeated side, and to acknowledge the rights of the conqueror. Thus, in the early stage of the war, the Duke of York was attained in 1459. In 1460 the victory of Northampton put him in a position to make good his claim to the crown. A compromise was brought about by the Lords, which sounds as if it had been suggested by the treaty of Troyes. By their award it was agreed that Henry should keep the crown for life, but that the duke should displace the king's son in the rank of heir apparent. Such an award implied the admission of the new doctrine of absolute hereditary right in its extremest form. At the same time, it saved the personal rights of the crowned king to whom the claimant had sworn allegiance. But this settlement on paper had no practical effect. The queen and the lords of her party disregarded it. In 1460 Duke Richard fell at Wakefield, and his claims passed to his son Edward. The compromise was now set aside on both sides. Henry had joined, or had been made to join, the queen's forces after the victory of Wakefield. The Yorkist doctrine was that, by so doing, he had broken the award, and had thereby forfeited the crown, which therefore passed to Edward. The claims of Edward were confirmed by a kind of popular election in London. After his crowning victory at Towton followed his coronation, and a fresh parliamentary settlement, which declared the victor of Agincourt a usurper. The reign of Edward IV. is now held to begin; but the war was not yet over. Margaret sought help in Scotland and France, and Scottish help was bought by the surrender of Berwick. The war began again in 1463, and this stage of it may be looked on as ended by the Yorkist victory at Hexham in 1464. The next year Henry was captured. But by this time Edward had taken a step which led to the estrangement of his most powerful supporters. His marriage with one of his subjects, Elizabeth Grey, and the growing influence of her family, the Woodvilles, began to offend the house of Neville, and its head, Richard, Earl of Warwick. After a series of almost unintelligible intrigues and insurrections, Edward was in 1470 driven out of the kingdom by a union between Warwick and the king's own brother, George, Duke of Clarence. Henry VI. was now taken from prison and again declared king. The crown was settled by Parliament on him and his son, with remainder to Clarence. But in the next year Edward came back; Clarence again changed sides, and the crown was secured to Edward by the fights of Barnet and Tewkesbury. At Tewkesbury Edward, the son of Henry was killed; the death we may feel sure that it was the murder — of Henry himself followed. The legitimate male line of Lancaster was now extinct, no descendant of any one of the sons of Henry IV. survived. There were foreign princes descended from John of Gaunt

in the female line, and among them the famous Charles, Duke of Burgundy, who seems, among the other objects of his ambition, to have sometimes dreamed of the English crown for himself. Such claims were not likely to meet with any support in England; and Edward, by a stroke of real policy, won Charles to his side by the hand of his sister Margaret, and found shelter at his brother-in-law's court during his exile. In England the hopes of the Lancastrian party now turned in a new direction, to legitimate descendants of John of Gaunt of the house of Somerset. That house also was extinct in the male line; its representative was Margaret, Countess of Richmond. Her young son, Henry Tudor, Earl of Richmond, was now, in the lack of any better claimant, looked on as the heir of Lancaster. It is needless to say that no genealogical subtlety could be held to give him any share in the royalty which the choice of the nation had conferred on the line of Henry IV. But something of the sentiment of royal descent might be held to have come to Henry in a strange way through his father's mother. She was no other than Katharine of France, the widow of Henry V., who married a Welshman named Owen Tudor, in whose descendants the crown of England passed, by a strange genealogical accident, to the ancient stock of Britain.

For the remaining twelve years of his life Edward IV. reigned without any important disturbance at home. But the members of the house of York had already begun to turn one against another. The validity of Edward's marriage, and, therefore, the legitimacy of his children, was doubtful. Clarence was in any case the next in succession after them, while, by the statute passed during Henry's second reign, he had a claim before Edward himself. In 1478 this dangerous brother was condemned in Parliament on a vague charge of treason; and he presently died, though not by any public execution. The latter years of Edward IV. were taken up chiefly with foreign policy and foreign war, both of which were on rather a small scale. A Scottish war from 1480 to 1482 is remarkable for the recovery of Berwick. In continental politics Edward was specially busy. His policy took largely the form of planning foreign marriages for his children, none of which were carried into effect. Even before he was driven out in 1470, he was trying to form alliances against France, especially with Charles of Burgundy. But, though Charles sheltered Edward in his exile, he gave him no real support when in 1475 he actually began an invasion of France. Edward, as well as Charles, was outwitted by Lewis XI. The king and his counselors went home, without glory or conquest, but with large bribes of French money.

The death of Edward in 1483 again, nominally, at least, gave the crown to a minor, Edward, the eldest son of the late king. The suspicions which had been vaguely raised against John of Gaunt during the minority of Richard II. became realities in the case of the ambitious uncle of Edward V. This was Richard, Duke of Gloucester, the youngest son of Richard, Duke of York, who was declared protector of the young king. His protectorate was marked by the illegal slaughter of several of the lords of the party of the queen mother. Presently Richard's own adherents claimed the crown for him. The claim was based on the alleged invalidity of Edward IV.'s marriage. Some ventured on the more improbable scandal that neither Edward nor Clarence was really a son of Duke Richard, and that Richard of Gloucester was his only real representative. A more decent argument was found in the attainder of George of Clarence, which, it was held, shut out his children from the succession. An irregular kind of election, which, however, professed to be made by the estates of

the realm, called on Richard to assume the crown. He was crowned instead of his nephew; and there can be little doubt that both Edward and his brother Richard, Duke of York, were made away with, like Arthur in earlier days, at the bidding of their uncle. The ancient custom of England would have spared all these crimes. Richard, who had in other respects many of the qualities of a good ruler, would doubtless have been chosen on the death of his brother. As it was, his crown was at once threatened by Henry of Richmond, who now passed for the representative of the house of Lancaster. The aim of his party was to marry him to Elizabeth, daughter of Edward IV., who now represented the more regular succession of the house of York. Richmond was in banishment in Brittany. The first attempts of himself and his partisans were crushed. At this stage of our history everything turns on marriages and genealogies. The deaths of Richard's queen, Anne Neville, and his son Edward, open a new stage in the tale. John, Earl of Lincoln, the son of the king's sister, Elizabeth, Duchess of Suffolk, was now declared the presumptive heir. But Richard now designed a marriage with his own niece Elizabeth, to which she and her mother seem to have consented. This plan hastened the schemes of Richmond. He landed, raised an army, and, helped by the treachery of the Stanleys and Percies, he overthrew Richard at Bosworth, August 22, 1485. Henry was crowned, and Parliament settled the crown on him and the heirs of his body, and none other. The new king clearly wished that his claims should be in no way dependent on his intended marriage with Elizabeth. Parliament, on the other hand, was clearly unwilling to give its formal sanction either to a right of conquest or to Henry's strange hereditary claim. Henry, in short, reigned by a parliamentary title, by an election which followed his coronation. In the next year, however, he carried out his promise of marrying Elizabeth; and, before the end of the year 1486, the birth of his eldest son, who, as the son of the first British king of England, received the name of Arthur, seemed to put the succession on a sure ground.

In 1509, Henry VII. died. His eldest surviving son, Henry VIII., who now united the claims of York and Lancaster, succeeded without a breath of opposition. He was the first king since Richard II. who reigned by an undisputed title; and he was, strangely enough, the last king who was formally elected in ancient fashion in the ceremony of his coronation. With him, rather than with his father, a new period opens; or, more accurately still, the new period opens with the second period of Henry VII.'s reign, after all opposition to his title had passed away. When the first Tudor king felt himself safe, the Tudor despotism began. Under the second Tudor king that despotism allied itself with ecclesiastical change, and the sixteenth century put on its most characteristic aspect.

It was during this period that England came within the range of those general causes of change which were now beginning to affect all Europe. The revival of learning, as it is called, was now spreading from Italy into other lands. The three great inventions which in the course of the fifteenth century affected the general state of mankind, gunpowder, printing, and the compass, began in the course of the second half of that century to do their work on England also. The Wars of the Roses differ widely, in their military character, from the civil wars of earlier times. The personal displays of chivalry in the field, as well as the older style of fortification, both became useless before the new engines of destruction. But, above all things, it was during this time that, in most parts of Europe, the chief steps were taken toward that general overthrow of ancient liberties

which reached its highest growth in the sixteenth century. Europe was massing itself into a system of powers, greater in extent and smaller in number, than heretofore. The masters of these powers were learning a more subtle policy in foreign affairs than those who went before them, and they were beginning to rest their trust at home on standing armies. We have reached the time of Lewis XI. and of Ferdinand of Aragon. While France had grown by the annexation of nearly all its vassal states, and of some states which were not its vassals, the new power of Spain was growing up, to develop in the next period into the gigantic dominion of the House of Austria. Italy, with the mass of its small commonwealths grouped together among a few larger states, some princely, some republican, becomes during this age the battlefield of the rival powers. This new state of things was not without its influence on England, though our insular position saved us from being so completely carried away as the continental nations. The power of the crown grew to a pitch which was altogether unknown at any earlier time except under the Conqueror and his immediate successors. Parliaments become more servile; sometimes they are dispensed with altogether. Arbitrary acts on the part of the crown are perhaps not more common than in earlier times; but they take a new character. When law is generally weak and is easily broken, the king's breaches of the law do not seem very different from breaches of the law on the part of other men. When the king has become powerful enough to enforce the law on other men, but fails to observe the law in his own acts, the fault is of another kind. It is no longer general lawlessness, but deliberate arbitrary rule.

It was to this state of things that England was tending during the whole of this time. The stir of civil war alternated with the repose of despotism. It might almost be said that the two went on side by side; for the Wars of the Roses were not a period of anarchy like the wars of Stephen and Matilda. The crown was fought for by contending princes at the head of great armies; but there was little or nothing of the wasting local and personal warfare of the earlier time. Except where the actual strife was waging, things went on much as usual. The king in possession was obeyed wherever his enemies were not in military occupation. After each revolution a parliament was ready to approve the change, to acknowledge the conqueror, to regulate the succession according to his pleasure, and commonly to attain the defeated prince and his supporters. It marks that the age of revolution was drawing to an end when the famous statute of Henry VII. declared that no man would be called in question for adhering to a king in possession, be his title good or bad. The care taken by every claimant of the crown to obtain a parliamentary acknowledgment of his right was at once a homage paid to the formal authority of parliaments and a heavy blow struck at their moral weight. The parliaments of this time were fast losing the spirit of the elder parliaments. The number of the temporal lords was lessened by battles, executions, and banishments. The spiritual lords had become more thoroughly servants of the crown than at any time since the twelfth century. The lower house had also undergone a change. In one sense its position had risen. The place of representative of a city or borough was now sought for by men who were not actual citizens or burgesses. And, owing to the restrictive statute of Henry VI. and to the change in the constitutions of the boroughs, both knights and burgesses were now chosen by less popular constituencies than those who chose them in earlier times. Yet, low as parliaments had fallen from their ancient standard, they still kept virtue enough for kings to dread them. Every

king of this age who deemed himself safe on his throne tried to reign without a parliament. During the first reign of Edward IV., parliament met, formally at least, with one exception, every year. In the latter part of his reign, five years passed without a parliament. So it was with Henry VII. Parliaments were frequent while insurrections were frequent. The last eleven years of Henry's reign saw only a single parliament. On the other hand, Richard III., whose throne was not safe during a moment of his short reign, was the least unconstitutional king of this period. He had time only for a single parliament, but that was a parliament rich in legislation, and which passed one great law restraining a special abuse of royal power. Edward IV., in the times when he dispensed with parliaments, brought in a practice of gathering what were called *benevolences*, gifts to the crown which were nominally free-will offerings, but which it was dangerous for the subject to refuse. These benevolences were expressly declared illegal by the statute of Richard. But Richard himself broke his own law; and later kings found it convenient to follow his practice rather than his legislation. And when the statute of Richard was quoted against them, they were not ashamed to plead that the act of the usurper was of itself null.

This, then, was the time of trial for England and her liberties. She and they were now full grown, and their strength had to be proved. Her probation went on for more than two hundred years; but now it began. In the end the nation and its liberties proved too strong for the kings. Parliaments were bullied, packed, and corrupted; their sittings were stopped for years together; but they were never abolished. The great laws which secured freedom were often broken, but they were never repealed or set aside. At the beginning of this period the distinction between an absolute and a limited monarchy was as clearly drawn out by a minister of Henry VI. as it could be by any modern political writer. And, if the practice did not always conform to the model traced by Sir John Fortescue, the law always did. The old principles of freedom were never so utterly forgotten, never so utterly trodden under foot, that they could not be called to life again when the favorable moment came. In this, it is plain, the history of England differs from the history of France, of Spain, of most continental countries. And certainly one reason for the difference was that they were continental countries, while England is insular. Constant rivalries, constant warfare with immediate neighbors, gave better pretexts for the maintenance of standing armies than could be found in England. The only immediate neighbor of England was Scotland. And the wars with Scotland, though working constant damage to the border shires, were not so dangerous to the kingdom in general that either prince or people would have dreamed of keeping up a standing army on their account. And, after Henry VII.'s treaty, war with Scotland ceased to be the regular state of things. Our kings therefore, without a standing army, could not utterly root out freedom as their continental brethren did. In the worst times they were driven to summon parliaments from time to time, and those parliaments now and then showed traces of the old spirit. Still, from this time onward the administration becomes highly arbitrary. The king and his council were guilty of constant illegal interference with the liberty of the subject. The Court of Star-Chamber, an offshoot from the Privy Council and so from the old *curia regis*, though sometimes useful in punishing offenders who were too strong for the ordinary course of law, became a terrible engine of oppression. It is characteristic of the time that judicial torture, unknown at all times to English law, and un-

known to English practice at all times before the fifteenth century and after the seventeenth, now began to be freely used. But it was used in every case by a special and illegal exercise of prerogative. No man was ever tortured to extort confession in any of the regular courts of English law.

We have seen that the civil wars really end, and that the time of unrestrained Tudor domination begins, in the middle of the reign of Henry VII. His later rule was the rule of a despot, who strove as far as might be to reign without a parliament. His desire to be independent of his people led to that rule of grasping avarice which has caused his rule to be chiefly remembered for the endless shifts by which his greed of money was satisfied. His reign is important chiefly as leading the way to the more brilliant time which followed, a time which can be understood only if we throw ourselves into the point of view from which men looked upon it at the time. The next king, Henry VIII., began his reign in two characters which at once marked it off from any reign since that of Henry V., we might almost say from any reign since that of Edward III. After a long time, during which the strength of England had been wasted in deciding in arms between rival pretenders to the crown, England had again a king whose title was undisputed, and who led Englishmen to conquest beyond the sea. That was the first aspect in which Henry VIII. appeared to England and to Europe. The real historical characteristics of his reign are different. The special features of his reign are the working of a despotism of a very peculiar kind, and the application of that despotism to work a great ecclesiastical revolution. But, though this last is the special characteristic of the age and the reign of Henry, yet it did not become a characteristic of his reign till he had already been many years on the throne. The acts which his name first suggests to the popular mind, the suppression of monasteries and the beheading of wives, do indeed effectually distinguish his reign from any other; but they are features which belong to the latter years of his reign only. They no more make up the whole of Henry's reign than the Scottish wars make up the whole of the reign of Henry I. During the greater part of Henry's reign the characteristic feature of the time seemed to be the unusually high place which England held in the general affairs of Europe.

The traditions of arbitrary power and unscrupulous shedding of blood had been handed on to Henry by his predecessors, as far back as his Yorkist grandfather. It was the peculiar direction which was given to despotism and slaughter in the latter part of his reign which was wholly his own. The darkest side of Henry's character came more and more into prominence in his later years; but his rule was arbitrary, and on occasion bloody, from the beginning. He could from the beginning put men to death, either to gratify a popular cry or to shield himself from purely imaginary dangers. Empson and Dudley, the ministers of his father, had fully deserved the hatred of the people; but their execution, almost the first act of Henry's reign, could be justified on no possible ground of law. In the midst of Henry's French wars, in 1521, Edward Stafford, Duke of Buckingham, was put to death, rather because his royal descent was deemed to make him dangerous than on account of any proved crime. But, in these and in all Henry's acts, we see that attention to formal legality which is the special characteristic of his reign. At no time, unless under the first years of the Conquest, was so much wrong done under legal form, and the Conqueror at least did not send those whom he despoiled to the scaffold. It would be going a great deal too far to say that all Henry's acts could be justified by the letter

of the law of England; but it may be fairly said that he could always plead either law or precedent. For his worst acts he was always able to show at least some pretense of legal sanction; his tyranny never became a reign of mere violence. In his days law emphatically became unlawful. Parliaments legislated as he thought good; judges and juries gave such judgments and verdicts as he thought good; and, when their action was too slow, parliament was ready to attain, even without a hearing, any one whom the king wished to destroy. When Henry's mind turned to ecclesiastical change, parliaments and convocations alike were ready to shape the creed of the nation according to the caprice of its ruler. That such a tyranny could in this way be carried out, never by mere force, often under strictly legal forms, makes the character both of the man and of the time a study of special interest. It is a time which specially deserves and needs an historian. Here nothing more can be done than to trace its most general features.

The ecclesiastical work of Henry's reign was not religious reformation in the sense in which those words would have been understood by Wickliffe or Luther. Henry now and then, in the endless shiftings of his course, looked in the direction of the German reformers, but it was rather for political than for religious ends. One or two of his theological productions at one stage do indeed show a slight Protestant tendency on one or two points. But this was only for a moment; Henry's later legislation went toward the establishment of the most rigid orthodoxy, according to the Roman type, in all matters of dogma. To the end of his days Henry and his prelates, Cranmer conspicuously among them, took care to send to the flames any who swerved in the least degree from the received doctrine of transubstantiation. Henry's scheme was to carry out in its fullness that after which earlier kings had so often striven, the complete emancipation of England from the power of the Roman See, and the transfer of the highest ecclesiastical jurisdiction to the crown. In this he did little more than put into a more distinct shape the authority which the Conqueror had exercised, and which Henry II. had striven to win back. The ancient kings had allowed the authority of the Pope to be exercised only so far as they thought good; Henry threw it off altogether. The Acts of 1534, which swept away the Roman supremacy, were the climax of the legislation which had been begun in the Constitutions of Clarendon, and which had been carried on in the statutes of Provisors and of *præmunire*. A few special points of Henry's legislation which were likely to give special offense lasted only during his own reign and that of his son. Such were the title of Head of the Church, and that personal jurisdiction in ecclesiastical matters which Henry claimed to exercise either by himself or through his vicar-general. Such again were the commissions from the crown which were taken out by bishops under Henry and Edward. These things formed no essential part of the royal supremacy. They were abolished under Mary, and they were not reestablished under Elizabeth. The essence of the change which Henry wrought was the abolition of all foreign jurisdiction within the island realm. And it must not be forgotten that, though the Roman bishop was chiefly aimed at, the Roman emperor was aimed at also. It was not without reason that the ancient imperial style of England now reappears. Since the Conquest the use of that style had been rare, and the instances of its use always mark some special need of the time. Its increased frequency under Henry marks a special need of his time. When the imperial power was in the hands of Charles V., and when Charles V. was an enemy, it was not without reason that it was declared that the

kingdom of England was an empire, and that its crown was an imperial crown. Separation from the See of Rome was not meant to carry with it any change of doctrine, or to imply any breach of communion with the churches which remained in the Roman obedience. It was strictly a scheme of ecclesiastical independence, and no more. But the acts of Henry put on a peculiar character from the circumstances which led to his ecclesiastical changes, and from the way in which many of them were carried out. And, when ecclesiastical change had once begun, it could not fail to ally itself with other influences, however little such alliance formed any part of the scheme of Henry himself.

In strictness of speech, the English Reformation, if by those words we understand changes in doctrine and ritual, is quite distinct from Henry's assertion of the ecclesiastical independence of England. In idea the two things stand quite separate. Practically the two form two stages in a great series of cause and effect. The system of Henry has been epigrammatically described as Popery without the Pope. And the experience of a few years show that Popery without the Pope was a visionary scheme. But the various stages which are often confounded under the one name of "The Reformation" must be carefully distinguished. There was not in England, as there was in some foreign countries, a particular act of a particular year which might fairly be called "The Reformation." In England, if the formula "The Reformation" has any meaning at all, it means the whole period of ecclesiastical change which was spread over a time of about forty years. It was a time of constant change, of change backward and forward; its result was that, by the middle of the reign of Elizabeth, there was an established state of things wholly different from the established state of things which there had been in the middle in the reign of Henry VIII. But in the development of the ecclesiastical constitution of England, just as in the development of her political constitution, there was no moment when an old state of things was altogether swept away, and when a wholly new state of things was set up in its place. The ecclesiastical development was far swifter, far more violent, than the political development, but the two were essentially of the same kind. Both were brought about by the gradual working of causes and their effects. As the political development of England was something wholly unlike the violent change of the French Revolution, so the ecclesiastical development of England was wholly unlike the violent change of the Reformation in the Swiss Protestant cantons.

For twenty years after his accession, Henry was famous, not only for strict orthodoxy of dogma, but for special devotion to the Roman See. He had received a learned education, and he believed himself to be a special master of theology. His writings in that character, as a defender of Roman doctrine against Luther, won him in 1521, the title of Defender of the Faith, which by a singular irony was conferred by Leo X. Through all this first period of his reign, the series of ecclesiastical statesmen still goes on. For fourteen years, from 1515 to 1529, ecclesiastical statesmanship was in truth at its highest pitch in the person of Thomas Wolsey, archbishop, cardinal, and chancellor. During the administration of this famous man, we are instinctively reminded of the joint rule of an earlier Henry and an earlier Thomas; but the fate of the two great chancellors was widely different. No English minister before Wolsey, and few after him, ever attained so great an European position. He dreamed of the popedom, while his master dreamed of the empire. In his home administration Wolsey carried out the policy which had become usual since Edward IV., and summoned parliament as seldom

as possible. On the other hand, his administration of justice won the highest general confidence, and his hand was far from heavy on the maintainers of the new religious doctrines. On the whole his position is rather European than English. He is the minister of Henry in his earlier character as warrior, conqueror, and arbiter of Europe. He is more like the great cardinals who ruled in other lands than anything to which we are used in England. The purely English work of Henry's reign was done by the hands of men of another kind. The era of the lay statesman now begins in the mightiest and most terrible of their number, Thomas Cromwell. From this time the highest offices are still occasionally held by churchmen, even as late as the middle of the seventeenth century. But the holding of office by churchmen now becomes exceptional; lay administration is the rule.

There is no need to go through the endless tale of Henry's marriages, divorces, and beheadings of wives, except so far as they have a political or ecclesiastical bearing. The mere number of Henry's wives is unparalleled in our history, and has not many parallels in any history; and the king was, to say the least, unlucky, who, out of six wives, found himself obliged to divorce two and behead two others. But, even in these matters, the peculiar character of Henry's tyranny stands forth. Everything is done with some show of legal form. When he wishes to get rid of a wife, or to exchange one wife for another, the first is divorced or beheaded by some process which has at least the show of legal authority. The new state of things was ushered in by the beheading of Sir Thomas More and of John Fisher, Bishop of Rochester. No greater mockery of all the forms of justice was ever done in any age or in any land. But the execution of these two worthies calls for a special notice on account of the great constitutional point which it involves. They were called on to swear both to the succession to the crown, as settled on the issue of Anne, and also to the preamble of the act which declared the marriage of Katharine invalid. This latter oath involved a theological proposition of which their consciences disapproved; to the succession they were perfectly ready to swear. That is to say, More, the great thinker of his generation, utterly cast aside the whole fgment of hereditary right. In his view the children of Henry and Anne would be illegitimate; but, in his view, it was within the power of parliament to settle the crown on the king's illegitimate children or on any persons whatsoever. To the succession, therefore, which was all that was of any practical moment, he would swear; to a proposition which he held to be doctrinally false he would not swear. On these grounds Henry sent his wisest and greatest subject to the scaffold.

Cromwell's reign of terror, as it has been well called, now sets in. It is specially remarkable for the constant use of acts of attainder, acts sometimes passed without giving the accused person the opportunity of making any defense. Not that in Henry's reign a defense went for anything, even when the regular forms of trial by a man's peers were observed. It was deemed for the king's honor that those whom the king accused should be convicted, and the Lords or the jury convicted accordingly. In more than one case, entries were found in Cromwell's papers, directing that such and such a person should be "tried and executed." Meanwhile new treasons and other crimes were invented. Martyrs were made on both sides; the supposed traitor and the supposed heretic were sometimes drawn to death on the same hurdle. Two of the martyrdoms of this period deserve special notice. In one case at least, but seemingly in one only, the penalties of heresy were held to

attach to the denial of the king's supremacy. For this crime a friar, Forrest by name, was burned with special circumstances of brutal mockery. On the other side, the case of Lambert, in 1538, well illustrates both the new jurisprudence and the peculiar position of some of the actors at the time. The men who were afterward burned themselves were the foremost in burning others. Lambert was denounced by Taylor and Barnes, and condemned by Cranmer, for the denial of transubstantiation. He appealed to the king in his character of Head of the Church. Henry heard the cause in person, and, when his own arguments and those of Cranmer failed to convince the heretic, he was sentenced to the stake by the voice of Cromwell. About the same time a general persecution took place of all who were guilty of having the blood of kings in their veins. Margaret, Countess of Salisbury, was the daughter of George, Duke of Clarence, the mother of Reginald Pole. Pole was in theology the very opposite to Henry. As the system of Henry was Popery without the Pope, so Pole might be said to be inclined to the Pope without Popery. With a distinct leaning to the Reformers on some strictly theological points, he was a zealot for the papal supremacy. On this point, and on all the practical points which flowed from it, Pole was a vigorous disputant against his royal kinsman. But he was beyond the sea, safe from the grasp of Henry, Cromwell, or Cranmer. The head of his aged mother, sentenced to die by act of attainder, paid the penalty of his crime.

This last deed of blood was specially Henry's own. The attainder of the countess was indeed passed while Cromwell was still in power, but she was not put to death till after his fall. But the deaths of particular persons seem but a small matter beside the great revolution which Cromwell wrought over the whole face of the country by his great work of the suppression of the monasteries. This work indeed incidentally supplied him with not a few personal victims. That the power of the State was supreme, as over everything else, so over ecclesiastical foundations, no man in England could doubt. Monasteries had been suppressed on occasion from the earliest times. Special attention has been already called to the suppression under Henry V.; and during Henry's own reign Wolsey had suppressed a considerable number of small monasteries to supply endowments for his colleges at Ipswich and Oxford. A general suppression of all the monasteries in the kingdom was clearly within the power of Parliament, and strong reasons might have been brought for such a course. We must, however, remember that at this stage Protestant objections to the monastic life do not apply. Henry, while destroying the monasteries, enforced the obligation of the chief monastic vow. But it might well be argued that the number and wealth of these institutions was excessive, that they had ceased to fulfill their original purposes, that on any showing they needed a sweeping reform, and that possibly reform could not be carried out without suppression. For the measure itself then much might be said. The way in which it was carried out was characteristic of Henry VIII. Mere violence was inconsistent with his character; something of the form of law must be had.

But, after all, in Henry's reign it is the marriages, the divorces, and the beheadings of his several queens which form, if not the causes, at least the occasions, of the greatest changes. Henry's dissatisfaction with one marriage had led to the fall of Wolsey and the rise of Cromwell; his dissatisfaction with another marriage led to the fall of Cromwell himself. England and Europe had been turned upside down in order that Henry might marry Anne Boleyn. Three years after her marriage, she was got rid of by the twofold process of a divorce

pronounced by Cranmer which declared the nullity of her marriage, and of a conviction for adultery by the House of Lords which implied its validity. Anne was beheaded, and the next morning Henry, acting, as we have been told, from the severest principles of public duty, married her maid, Jane Seymour. It was now made treasonable to assert the validity of Anne's marriage, as before it had been treasonable to deny it. Anne's daughter Elizabeth was declared illegitimate, as Katharine's daughter Mary had been declared illegitimate, and the crown was settled on the issue of Jane only. The new queen, by unusual good luck, died, neither divorced nor beheaded, at the birth of her only child, Henry's only legitimate son, the future Edward VI.

After the fall of Cromwell the reign of Henry loses much of its interest; or at least the interest is, as at the beginning of his reign, again transferred to the wars with France and Scotland. But these wars, with their momentary successes, are of little importance, except that in the course of the Scottish war we see the beginning of the train of events which sixty years later united the English and Scottish crowns. James V. of Scotland, it must be remembered, was Henry's nephew, the son of his sister Margaret. According to genealogical notions, he was next in succession to the crown after Henry's own children. The prospect of this contingent succession was dangled by Henry before the eyes of James. And when James died, leaving an infant daughter, the famous Queen Mary, Henry's schemes now took the form of a marriage between her and his son Edward. This was exactly the same scheme which had been proposed by Edward I. when Scotland had an earlier child queen. In neither case did the scheme bear immediate fruit. The marriage of Edward and Mary formed one of the terms of a momentary peace between England and Scotland in 1543. But the war began again, and was carried on, in connection with the reforming party in Scotland, both during this reign and during the early years of the next, with the avowed object of bringing about the marriage. It is needless to say that the marriage was never carried out. But Mary came to be, on other grounds, a claimant of the crown of England, and her son came to possess it.

During these later years of Henry, no commanding figure stands out like those of Wolsey and Cromwell. Henry himself, toward the end of his reign, lost much of his energy. Martyrdoms on both sides still went on, though, as compared with the slaughter of later times, they were rare on both sides. There is yet no open change; but the gap between the two parties gets wider and wider. Katharine Howard, married in 1540, was beheaded early in 1542. In the next year Henry married his last wife, a third Katharine, commonly called Katharine Parr, but who was then the widow of Neville, Lord Latimer. Her leaning was to the new doctrines, and at one time she was in danger on their account. On the whole, the tendency was now in favor of change. Things seemed to sway backward and forward between Bishop Gardiner and the Duke of Norfolk, on one side, and Cranmer and Edward, Earl of Hertford, a brother of Queen Jane Seymour, on the other side. At the moment of Henry's death the reforming party had the greater influence. The last who were sentenced to die in his time were Norfolk himself and his son, the famous Earl of Surrey. The son perished; the father was saved by the king's death. But though the reforming party had politically the upper hand, no step was taken as long as Henry lived in the direction of strictly religious reformation.

The most important question during these later years

was the settlement of the succession. By a statute passed in 1544, the crown was to pass to Henry's three children in order, Edward, Mary, and Elizabeth. Both the king's daughters had been declared illegitimate; but now, without any reversal of their illegitimacy, they were placed in the succession to the crown. On no theory could Mary and Elizabeth both be legitimate; the law had declared that neither of them was. The point is of importance, because in truth neither Mary nor Elizabeth reigned by any right of birth, but by a purely parliamentary title. But the statute went on further to bestow on Henry a power which never was bestowed on any other king before or after. In default of the issue of his own children, the crown was to pass to such persons as he might himself appoint by his last will, signed with his own hand. By his last will he exercised this power by leaving the crown in remainder to the issue of his younger sister, Mary, the French queen, who, after the death of Lewis XII., had married Charles Brandon, Duke of Suffolk. He thus passed by the queen of Scots and the other issue of his elder sister Margaret. The provisions of this will become of great importance at a later time; and it shows on what small accidents great questions may depend, that it is matter of controversy whether the will was signed by the king's own hand, according to the statute, or whether it was merely signed with a stamp.

On the reign of Henry, followed the reigns of his three children in succession, according to the order laid down in the statute of 1544. The marked historical feature of these reigns is that they are the time of strictly religious reformation. It was found that the middle system of Henry could not last, that the English Church and nation must throw in its lot with one side or the other in the great controversy of the age. Under Edward, the religious reformation was wrought. Under Mary, first the work of Edward, and then the work of Henry, was undone, and the authority of the Roman See was again admitted. Under Elizabeth the work both of Henry and of Edward was done again.

The reign of Elizabeth saw the beginnings of the Roman Catholic body on the one side, and of the Protestant dissenters on the other. As yet both dissentient bodies existed only as objects of persecution. A main feature of the later religious history of England has been the steps by which, first the Protestant dissenters, and then the Roman Catholics, have been admitted to full equality with the members of the national Church.

The political history of these reigns, domestic and foreign, is of high importance, but it depends, in a large measure, on the religious history. It was mainly owing to religious causes that the enmity toward France, so strong in earlier times, so strong again in later times, was, during this period, exchanged for a temporary enmity toward Spain. And, during the reign of Elizabeth, we see the beginnings of that alliance between certain religious parties and certain political parties which forms the leading feature of the history of the seventeenth century. In truth, it was during this time that organized parties, either religious or political, had their beginning. In a certain sense, there have been Whigs and Tories from the beginning. We can see the existence of different political opinions, of different theories as to the relation of the crown and people, in days before the Norman Conquest; and in every civil war, in the wars of the thirteenth century above all, distinct political parties stand forth and meet one another in arms. But it can hardly be said that such parties lasted beyond the immediate occasion, or that the party of one age was connected by direct succession with the party of an earlier age. But from the days of

Elizabeth the political and religious parties of later times can be distinctly traced. From her time they have an unbroken succession; from her time they have the special characteristic of being parliamentary parties.

The six years' reign of the young son of Henry VIII. might almost be called a revolutionary period throughout. Its beginning marks a stage in the history of kingship in England. Edward VI., succeeding by the express terms of an act of parliament, was the first king at whose accession the last traces of the ancient popular election were dispensed with. He was a minor, and his authority was struggled for by a knot of ambitious men, all of whom had risen into importance during the late reign. The king's uncle, Edward, Earl of Hertford, named by Henry as one member of a council of regency, contrived to make himself Duke of Somerset and sole protector. Finding a rival in his younger brother Thomas, he, Cromwell-fashion, procured his attainder without a hearing. In 1549, he himself fell before the arts of John Dudley, Earl of Warwick and Duke of Northumberland, the son of the notorious agent of Henry VII., the father of the notorious favorite of Elizabeth. Somerset was partly restored to favor in 1550; but, in 1551, came his trial and execution, strange to say, on a charge of felony, though a political felony, and not of treason. The remaining two years of the reign of Edward are the reign of Northumberland. His last act was to persuade the young king to do without parliamentary authority what his father had done by parliamentary authority, and to settle the succession to the Crown by will. By this illegal instrument he disinherited both his sisters, and named Jane Grey as his successor. As a granddaughter of the French queen, Mary, Jane was in the line named by Henry in case of the failure of his own children; but her immediate promotion was due to her being the wife of a son of Northumberland. Jane, proclaimed by the council, was rejected by the nation, and Mary, whose parliamentary title was undoubted, was raised to the throne by a popular movement. Northumberland of course paid his forfeit with his head; but the execution of Jane herself, not at the time, but after a later revolt in which she had no share, was an act of needless harshness.

England, under Edward, altogether fell from the great European position which she had held under Henry.

The reign of Edward was followed by another reign, yet shorter than his own, but not less memorable. The nine days' wonder of Jane's reign was followed by the five years of Mary. It is singular that, though the crown of England had so often passed to claimants whose descent was wholly in the female line, yet England had never before seen a crowned queen. The Empress Matilda was never crowned, and she bore no higher title than Lady. The novelty gave rise to some cavil, and it was found needful at a later stage of Mary's reign for Parliament to declare that a Queen of England possessed all the rights and powers of a king. This first female reign was the time which finally settled the religious position of England. There can be little doubt that throughout Edward's reign the mass of the people were still attached to the system of Henry, that they did not wish for the religious changes of Edward's reign, but that they had not the slightest wish to bring back the spiritual dominion of Rome. They were for the mass, but not for the Pope. The reign of Mary taught them that the middle system would not work, that one side or the other must be taken, that the mass could not be had without the Pope. Furthermore, men learned to connect both mass and Pope with a political alliance which they hated, and with a persecution differ-

ent both in kind and in degree from anything which England had before seen. As for Mary herself, it is as impossible to deny her many personal virtues as it is to deny her share in a persecution which, whoever may have been its advisers, she at least did nothing to stop. But her personal position had much to do with the course of events, religious and political. She was the only person in the realm who was bound, not only to the ancient faith and ritual, but also to the supremacy of Rome. The supremacy of Rome was inseparably connected with the validity of her mother's marriage and the legitimacy of her own birth. As it was, she was simply queen by act of parliament. She naturally wished to be queen as the legitimate daughter of her father. And, if she was bound to Rome, she was no less bound to Spain. The emperor had been her firm and her only friend, whose influence had secured her life and her freedom of worship. Another sovereign might have restored the ancient worship with the assent of the greater part of the nation; but, with Mary as queen, the restoration of the ancient worship meant spiritual submission to Rome and political subserviency to Spain; and in this the nation was not prepared to follow her.

The last days of Mary showed the impolicy of the Spanish match. Strange to say, one of the first acts of Philip, so preëminently the Catholic king, was a war with the Pope, Paul IV., in his temporal character. Henry of France broke his truce with Spain, and encouraged English traitors to attempt the betrayal of Calais, and to make an actual landing in England. Mary declared war in 1557, and English troops shared in the victory of St. Quintin. But at the beginning of the next year, the last of Mary's reign, the French took Calais, and England ceased to be a continental power. She has won back that character in later times by the momentary possession of Dunkirk and the more lasting possession of Gibraltar; but the last relic of the conquests of Edward III. now passed away, as the last relics of the inheritance of Eleanor had passed away 105 years before. For a few months Mary bore up against sickness and neglect, against sorrow and national discontent. On November 17, 1558, she died, and Cardinal Pole followed her, having been for a few hours the subject of Elizabeth.

The last fact brings us to the great reign which ends the period with which we are now dealing. Under Elizabeth that which was wanting to complete the character of England and of Englishmen was added. The religious character of the nation was now fixed; and its religious character had no small share in fixing its political position at home and abroad. The National Church retained so much of the middle system of Henry as to hold in some sort a middle place between Rome and the Protestant Churches of the continent. But this middle position at no time extended to more than strictly religious points of doctrine, discipline, and ceremony. As a nation, as a power, England has been essentially Protestant from the time of Elizabeth. But the fact of the middle position of the English Church led to the formation of religious bodies at home which parted off from it in opposite directions. And from Elizabeth's day onward the party of further religious reform has also been the party of political freedom. The Puritan party, it must be remembered, had no more notion of toleration than any other party of those days. Its object, like that of every other party, was not the mere toleration, but the exclusive establishment, of its own system. But, on the one hand, every change, every debate, helped to bring about religious toleration in the end. And, as the Puritan movement was largely a movement against arbitrary authority, it was necessarily a movement in favor of freedom. But

in England a movement in favor of freedom did not mean the establishment of anything new, but the restoration of what was old. It meant the carrying out of existing laws which Tudor despotism had trampled under foot. In any new legislation that might be needed, it meant the falling back on the old constitutional principles which had been always acknowledged, if not always carried out in practice, from Edward I. to Henry VI. Politically the struggle of the seventeenth century, which had its root in the controversies of the sixteenth, was the repetition of the struggle of the thirteenth. Even in the religious element in both cases there is a likeness. Earl Simon and his friends did not swerve from the received orthodoxy of their day; for the time for strictly religious controversy had not yet come. But they were none the less the Puritans of their own day. A revived spirit of independence marks the parliaments of Elizabeth, and marks them in proportion as the Puritan element grows stronger. Elizabeth loved arbitrary power as well as any sovereign that ever reigned; but she knew that one condition of holding any power was to know how to yield, and, when she yielded, she yielded gracefully. According to English law, nothing could be better than Elizabeth's parliamentary title, the title quite independent of the canonical legitimacy of her birth. But, according to the papal theory, she was illegitimate, and, according to the hereditary theory, her illegitimacy excluded her from the crown. On this showing, the lawful queen was Mary of Scotland, who, at the beginning of Elizabeth's reign, was the wife of the dauphin, soon afterward Francis II., King of France. Francis and Mary took the titles of king and queen of England and Ireland; and Mary, whether at the court of France, on the throne of Scotland, or in her prison in England, was the center of all the hopes and all the conspiracies of the Roman party. This is not the place to go through her story, closely connected as it is throughout with English history. As regards the succession, it is clear that, by the will of Henry VIII., the claim of the house of Suffolk was undoubted. But it was a kind of claim which needed a claimant of position and ability, like Richard of York in former times, to assert it. The house of Suffolk, on the other hand, was under a cloud, through a series of low or doubtful marriages. Their claim therefore passed out of notice. The queen obstinately refused to name any successor, or to allow any successor to be named; and all claims might be looked on as set aside by an act which made it treasonable to maintain any one to be the lawful successor except the queen's own issue. In this state of things, men's minds naturally turned to the Scottish line, which had at least hereditary descent in its favor. After the death of Mary the religious objection no longer applied, and James, her Protestant son, succeeded on Elizabeth's death, without the slightest opposition from any party. The house of Stewart however came in without any shadow of parliamentary title, and directly in the teeth of the parliamentary title of the house of Suffolk, if the will of Henry VIII. is to be looked on as valid and unrepcaled.

The quiet of the first eleven years of Elizabeth's reign was broken in 1569 by a rising in the North in favor of the old religion. This was not a mere popular movement, like the western and eastern revolts of Edward's reign. Its leaders were the greatest nobles of northern England, the earls of Northumberland and Westmoreland. It was, in short, the Pilgrimage of Grace over again. The insurrection was put down with a good deal of bloodshed, but not till mass had been again sung in Durham Abbey. In the next year, 1570, the bull of excommunication and deposition pronounced by Pius V. changed all Elizabeth's relations at home and

abroad. From this time the English Roman Catholics, from a party dissatisfied with the change, became a distinct and a persecuted religious body. In the next year the Puritan movement for further change in the church took a more definite shape in the motions of Strickland in the House of Commons. About the same time the first separate Puritan congregations began to be formed. From this time the queen and her ecclesiastical system had to struggle with enemies on both sides, and to deal out persecution in different measures against both. A terrible engine for this purpose was the special creation of the reign of Elizabeth, the Court of High Commission. The queen, as Supreme Governor of the Church, appointed commissioners, clerical and lay, to exercise the somewhat undefined powers of her office. Alongside of the Star-Chamber a kindred power arose, to bring men's souls and bodies into submission. And meanwhile a few men who ventured on specially daring speculations, and whose tenets were condemned alike by Roman, Anglican, and Puritan orthodoxy, were still sent to the flames. The Roman martyrs were many; but in their case religious and political disputes were hopelessly mixed up. Conspirators against the queen's life or crown could not be allowed to escape on any pretense of religious duty. On the other hand, acts of simple religious worship were made criminal, though liable to the fate of treason and not of heresy. Plots of all kinds went on till the execution of Mary Stewart in 1587. After that time there was less material for plots; but the persecution went on on both sides. But by this time the foreign relations of the kingdom had become even more important than the condition of things at home.

The completed national character of England dates from the days of the Tudors, and mainly from the reign of Elizabeth. From this time, in dealing with the actors in English history, we seem, more thoroughly than in any earlier time, to be dealing with men who are in all things our own fellows. One main cause of this is that the language of the sixteenth century is the earliest form of English which an ordinary modern reader can understand without an effort. The handwriting of the sixteenth century is harder to read than the handwriting of any age before or since. The spelling of the sixteenth century is more chaotic and unreasonable than the spelling of any age before or since. But the language itself, when taken out of its uncouth clothing, is in the main intelligible, even to those who have not made language a special study. The philologist sees that the language of the nineteenth century is the same, by unbroken personal unity, as the language of the fifth century. He sees that the changes which distinguish the language of the nineteenth century from the language of the fifth century were fully accomplished by the fourteenth. But all this is for the philologist. The ordinary reader, who reads merely for the matter or the style of his book, cannot understand the language of the fifth century at all; he can understand the language of the fourteenth century only with an effort. But the language of the sixteenth century is clear to every one who reads with decent attention. It is near enough to the speech of our own times to be understood; it is far enough removed from the speech of our own times to have an archaic flavor, venerable or quaint, according to the matter in hand and its treatment. The literature of the sixteenth century gives us the earliest English writings in prose and verse, which we read simply as literature. Spenser and Shakespeare, Hooker, and Raleigh, stand to us in a different relation from Cædmon, or even from Chaucer. And, greater than all, the sixteenth century has given us, in our national prayer-book, in our

national translation of the Bible, models of the English tongue which, as long as they survive, will survive to rebuke its corrupters. For them we have to thank the reigns of Henry and of Edward. Henry first gave his people the Scriptures in their own tongue, and then restricted their use. But his gift went for more than his restriction. From that day to this, the English Bible has been the only literary, as well as the only religious, food of millions of Englishmen. The Puritan lived in the English Bible, as the mediæval scholar had lived in the Latin Bible. That two great works of sixteenth century English have been familiar to us ever since, while no earlier writing has been commonly known in the like sort, is doubtless one great reason why the English of the sixteenth century is the earliest English which is commonly intelligible. But this is not the only reason. The reign of Elizabeth is in itself the most marked epoch in English literature. The stirring of men's minds which led to the great political and religious events of the age led also to the sudden burst of a whole literature in verse and prose. In the sixteenth century the English drama began, modern English theology began, the writing of history in the modern sense and in the English tongue began. And with the beginning of a school of new writers came a time of more diligent care toward our ancient writers. The fanatic religionists and greedy spoilers of Henry's and Edward's days had destroyed ancient records and chronicles by wholesale. The hand of Elizabeth's first primate, the renowned Matthew Parker, was stretched out to save instead of to destroy, to publish instead of to tear in pieces. To his pious care more than to that of any other man, we owe it that the ancient history of England can be read and written.

And, as it was with language, so it was with everything else which goes to make up the national life. Its modern form is now completed. We feel that the men of Elizabeth's day, her statesmen, her warriors, her poets, and her divines, are men who come near to ourselves in a way which the men of earlier times cannot do. A gap of more than a generation, of more than two generations, seems to part Wolsey from Burghley. The main features of English social life had really been fixed in the fifteenth century; they do not thoroughly come home to us till the sixteenth. We see this in its outward form in the houses of Elizabeth's reign.

England and the English people are thus thoroughly formed in the shape which they have kept to this day. Their political constitution has lived through its time of trial, ready to come forth again in its full strength. The religious character of England is fixed; her European position is fixed also. She has become wholly insular, ready to play in European politics the special part of an insular power. At home Wales is incorporated; Ireland, now a kingdom, is brought more nearly than ever under the rule of its queen. The time has now come for a nearer and a friendly union with the other kingdom which hitherto has divided the Isle of Britain with England. The lack of direct descendants of Henry, the ill luck of the descendants of his sister Mary, carried the English crown to the descendants of Margaret, and called the king of Scots to the English throne. The union of the crowns led, as a necessary though not an immediate effect, to the union of kingdoms, to the time when England and Scotland, political names, so long rival and hostile names, were merged in the common geographical name of Great Britain.

The defeat of the Spanish Armada in 1588, had been the final victory gained on behalf of the independence of the English Church and State. The fifteen years which followed had been years of successful war; but

they had been also years during which the nation had been preparing itself to conform its institutions to the new circumstances in which it found itself in consequence of the great victory. When James arrived from Scotland to occupy the throne of Elizabeth he found a general desire for change. Especially there was a feeling that there might be some relaxation in the ecclesiastical arrangements. Roman Catholics and Puritans alike wished for a modification of the laws which bore hardly on them. James at first relaxed the penalties under which the Roman Catholics suffered, then he grew frightened by the increase of their numbers and re-imposed the penalties. The Gunpowder Plot (1605) was the result, followed by a sharper persecution than ever.

The Puritans were invited to a conference with the king at Hampton Court (1604). They no longer asked, as many of them had asked in the beginning of Elizabeth's reign, to substitute the Presbyterian discipline for the Episcopal government. All they demanded was to be allowed permission whilst remaining as ministers in the Church to omit the usage of certain ceremonies to which they objected. It was the opinion of Bacon that it would be wise to grant their request. James thought otherwise, and attempted to carry out the Elizabethan conformity more strictly than it had been carried out in his predecessor's reign.

In 1604 the Commons agreed with Bacon. They declared that they were no Puritans themselves, but that, in such a dearth of able ministers, it was not well to lose the services of any one who was capable of preaching the gospel. By his refusal to entertain their views James placed himself in opposition to the Commons in a matter which touched their deeper feelings. As a necessary consequence every dispute on questions of smaller weight assumed an exaggerated importance. The king had received a scanty revenue with his crown, and he spent freely what little he had. As the Commons offered grudging supplies, the necessity under which he was of filling up the annual deficit led him to an action by which a grave constitutional question was raised.

From the time of Richard II., to the reign of Mary no attempt had been made to raise duties on exports and imports without consent of parliament. But Mary had, under a specious pretext, recommenced to a slight extent the evil practice, and Elizabeth had gone a little further in the same direction. In 1606 a merchant named Bate resisted the payment of an imposition—as duties levied by the sole authority of the crown were then called. The case was argued in the Court of Exchequer, and was there decided in favor of the crown. Shortly afterward new impositions were set to the amount of £70,000 a year. When parliament met in 1610 the whole subject was discussed, and it was conclusively shown that, if the barons of the exchequer had been right in any sense, it was only in that narrow technical sense which is of no value at all. A compromise attempted broke down, and the difficulty was left to plague the next generation. The king was always able to assert that the judges were on his side, and it was as yet an acknowledged principle of the constitution that parliament could not change the law without the express consent of the crown, even if, which was not the case in this matter, the Lords had sided with the Commons. James's attempt to obtain further supplies from the Commons by opening a bargain for the surrender of some of his old feudal prerogatives, such as wardship and marriage, which had no longer any real meaning except as a means of obtaining money in an oppressive way, broke down, and early in 1611, James dissolved his first parliament in anger. A second parliament, summoned in 1614, met with the same fate after a session of a few weeks.

The dissolution of this second parliament was followed by a short imprisonment of some of the more active members, and by a demand made through England for a benevolence to make up the deficiency which parliament had neglected to meet. The court represented that, as no compulsion was used, there was nothing illegal in this proceeding. But as the names of those who refused to pay were taken down, it cannot be said there was no indirect pressure.

The most important result of the breach with the parliament of 1614, however, was the resolution taken by James to seek refuge from his financial and other troubles in a close alliance with the king of Spain. His own accession had done much to improve the position of England in its relation with the Continental powers. Scotland was no longer available as a possible enemy to England, and though an attempt to bind the union between the two nations by freedom of commercial intercourse had been wrecked upon the jealousy of the English Commons (1607), a legal decision had granted the status of national subjects to all persons born in Scotland after the king's accession in England. Ireland, too, had been thoroughly overpowered at the end of Elizabeth's reign, and the flight of the Earls of Tyrone and Tyrconnel in 1607, had been followed by the settlement of English and Scottish colonists in Ulster, a measure which, in the way in which it was undertaken, sowed the seeds of future evils, but undoubtedly conducted to increase the immediate strength of the English Government in Ireland.

Without fear of danger at home, therefore, James, who as king of Scotland, had taken no part in Elizabeth's quarrel with Philip II., not only suspended hostilities immediately on his accession, and signed a peace in the following year, but looked favorably on the project of a Spanish alliance, in order that the chief Protestant and the chief Catholic powers might join together to impose peace on Europe, in the place of those hideous religious wars by which the last century had been disfigured. In 1611 circumstances had disgusted him with his new ally, but in 1614, he courted him again, not only on grounds of general policy, but because he hoped that the large portion which would accompany the hand of an infantina would go far to fill the empty treasury.

In this way the Spanish alliance, unpopular in itself, was formed to liberate the king from the shackles imposed on him by the English constitution. Its unpopularity, great from the beginning, became greater when Raleigh's execution (1618) caused the government to appear before the world as truckling to Spain. The obloquy under which James labored increased when the Thirty Years' War broke out (1618), and when his daughter Elizabeth, whose husband, the elector palatine, was the unhappy claimant to the Bohemian crown (1619), stood forth as the lovely symbol of the deserted Protestantism of Europe. Yet it was not entirely in pity for German Protestants that the heart of Englishmen beat. Men felt that their own security was at stake. The prospect of a Spanish infantina as the bride of the future king of England filled them with suspicious terrors. In Elizabeth's time the danger, if not entirely external, did not come from the government itself. Now the favor shown to the Roman Catholics by the king opened up a source of mischief which was to some extent real, if it was to a still greater extent imaginary. Whether the danger were real or imaginary, the consequence of the distrust resulting from the suspicion was the reawakening of the slumbering demand for fresh persecution of the Roman Catholics, a demand which made a complete reconciliation between the crown and the Lower House, a matter of the greatest difficulty.

In 1621 the third parliament of James was summoned

to provide money for the war in defense of his son-in-law's inheritance in the Palatinate, which he now proposed to undertake. But it soon appeared that he was not prepared immediately to come to blows, and the Commons, voting a small sum as a token of their loyalty, passed to other matters.

Indolent in his temper, James had been in the habit of leaving his patronage in the hands of a confidential favorite, and that position was now filled by George Villiers, Marquis and afterward Duke of Buckingham. The natural consequence was that men who paid court to him were promoted, and those who kept at a distance from him had no notice taken of their merits. Further, a system of granting monopolies and other privileges had again sprung up. Many of these grants embodied some scheme which was intended to serve the interests of the public, and many actions which appear startling to us were covered by the extreme protectionist theories then in vogue. But abuses of every kind had clustered round them, and in many cases the profits had gone into the pockets of hangers-on of the court, while officials had given their assistance to the grantors even beyond their legal powers. James was driven by the outcry raised to abandon these monopolies, and Act of Parliament, in 1624, placed the future grant of protections to new inventions under the safeguard of the judges.

The attack on the monopolies was followed by charges brought by the Commons before the Lords against persons implicated in carrying them into execution, and subsequently against Lord Chancellor Bacon, as guilty of corruption. The sentence passed by the Lords vindicated the right of Parliament to punish officials who had enjoyed the favor of the crown, which had fallen into disuse since the accession of the House of York. There was no open contest between Parliament and king in this matter. But the initiative of demanding justice had passed from the crown to the Commons. It is impossible to overestimate the effect of these proceedings on the position of parliament. The crown could never again be regarded as the sun of the governmental system.

When the Commons met after the summer adjournment, a new constitutional question was raised. The king was at last determined to find troops for the defense of the Palatinate, and asked the Commons for money to pay them. They in turn petitioned the crown to abandon the Spanish alliance, which they regarded as the source of all the mischief. James told them that they had no right to discuss business on which he had not asked their opinion. They declared that they were privileged to discuss any matter relating to the commonwealth which they chose to take in hand, and embodied their opinion in a protest, which they entered on their journals. The king tore the protest out of the book, and dissolved parliament.

Then followed a fresh call for a benevolence, this time more sparingly answered than before. A year of fruitless diplomacy failed to save the Palatinate from total loss. The ill-considered journey to Madrid, in which Prince Charles, accompanied by Buckingham, hoped to wring from the Spanish statesmen a promise to restore the Palatinate in compliment for his marriage with the Infanta, ended also in total failure. In the autumn of 1623 Charles returned to England without a wife, and without hope of regaining the Palatinate with Spanish aid.

He came back resolved to take vengeance upon Spain. The parliament elected in 1624 was ready to second him. It voted some supplies on the understanding that, when the king had matured his plans for carrying on the war, it should come together in the autumn to vote the necessary subsidies. It never met

again. Charles had promised that, if he married a Roman Catholic lady, he would grant no toleration to the English Catholics in consideration of the marriage. In the autumn he had engaged himself to marry Henrietta Maria, the sister of the King of France, and had bound himself to grant the very conditions which he had declared to the Commons that he never would concede. Hence it was that he did not venture to recommend his father to summon parliament till the marriage was over. But though there was but little money to dispose of, he and Buckingham, who, now that James was sick and infirm, were the real leaders of the government, could not endure to abstain from the prosecution of the war. Early in 1625 an expedition, under Count Mansfeld, was sent to Holland, that it might ultimately cut its way to the Palatinate. Left without pay and without supplies, the men perished by thousands, and when James died in March, the new king had to meet his first parliament burdened by a broken promise and a disastrous failure.

When parliament met (1625) the Commons at first contented themselves with voting a sum of money far too small to carry on the extensive military and naval operation in which Charles had embarked. When the king explained his necessities, they intimated that they had no confidence in Buckingham, and asked that, before they granted further supply, the king would name counsellors whom they could trust, to advise him on its employment. Charles at once dissolved parliament. He knew that the demand for ministerial responsibility would in the end involve his own responsibility, and, believing as he did that Buckingham's arrangements had been merely unlucky, he declined to sacrifice the minister whom he trusted.

Charles and Buckingham did their best to win back popularity by strenuous exertion. They attempted to found a great Protestant alliance on the Continent, and they sent a great expedition to Cadiz. The Protestant alliance and the expedition to Cadiz ended in equal failure. The second parliament of the reign (1626) impeached Buckingham for crimes against the state. As Charles would not dismiss him simply because the Commons were dissatisfied with him as a minister, they fell back on charging him with criminal designs. Once more Charles dissolved parliament to save Buckingham. Then came fresh enterprises and fresh failures. A fleet under Lord Willoughby was almost ruined by a storm. The King of Denmark, trusting to supplies from England which never came, was defeated at Lutter. A new war, in addition to the Spanish war, broke out with France. A great expedition to Rhé, under Buckingham's command (1627), intended to succor the Huguenots of Rochelle against their sovereign, ended in disaster. In order to enable himself to meet expenditure on so vast a scale, Charles had levied a forced loan from his subjects. Men of high rank in society who refused to pay were imprisoned. Soldiers were billeted by force in private houses, and military officers executed martial law on civilians. When the imprisoned gentlemen appealed to the King's Bench for a writ of *habeas corpus*, it appeared that no cause of committal had been assigned, and the judges therefore refused to liberate them. Still Charles believed it possible to carry on the war, and especially to send relief to Rochelle, now strictly blockaded by the French Government. In order to find the means for this object he summoned his third parliament (1628). The Commons at once proceeded to draw a line which should cut off the possibility of a repetition of the injuries of which they complained. Charles was willing to surrender his claim to billet soldiers by force, to order the execution of martial law in time of peace, and to exact forced loans, bene-

volences, or any kind of taxation, without consent of parliament; but he protested against the demand that he should surrender the right to imprison without showing cause. It was argued on his behalf, that in case of a great conspiracy it would be necessary to trust the crown with unusual powers to enable it to preserve the peace. The Commons, who knew that the crown had used the powers which it claimed, not against conspirators, but against the commonwealth itself, refused to listen to the argument, and insisted on the acceptance of the whole Petition of Right, in which they demanded redress for all their grievances. The king at last gave his consent to it, as he could obtain money in no other way. In after times, when any real danger occurred which needed a suspension of the ordinary safeguards of liberty, a remedy was found in the suspension of the law by Act of Parliament; such a remedy, however, only became possible when king and parliament were on good terms of agreement with one another.

That time was, as yet, far distant. The House of Commons brought fresh charges against Buckingham, whose murder, soon after the prorogation, removed one subject of dispute. But when they met again (1629) they had two quarrels left over from the preceding session. About a third part of the king's revenue was derived from customs duties, which had for many generations been granted by Parliament to each sovereign for life. Charles held that this grant was little more than a matter of form, whilst the Commons held that it was a matter of right. But for the other dispute, the difficulty would probably have been got over. The strong Protestantism of Elizabeth's reign had assumed a distinctly Calvinistic form, and the country gentlemen who formed the majority of the House of Commons, were resolutely determined, that no other theology than the Calvinistic should be taught in England. In the last few years a reaction against it had arisen, especially in the universities, and those who adopted an unpopular creed, and who at the same time showed tendencies to a more ceremonial form of worship, naturally fell back on the support of the crown. Charles, who might reasonably have exerted himself to secure a fair liberty for all opinions, promoted these unpopular divines to bishoprics and livings, and the divines in turn exalted the royal prerogative above parliamentary rights. He now proposed that both sides should keep silence on the points in dispute. The Commons rejected his scheme, and prepared to call in question the most obnoxious of the clergy. In this irritated temper they took up the question of tonnage and poundage, and instead of confining themselves to the great public question, they called to the bar some custom-house officers who happened to have seized the goods of one of their members. Charles declared that the seizure had taken place by his orders. When they refused to accept the excuse, he dissolved parliament, but not before a tumult took place in the House, and the Speaker was forcibly held down in his chair whilst resolutions hostile to the Government were put to the vote.

For eleven years no parliament met again. The extreme action of the Lower House was not supported by the people, and the king had the opportunity, if he chose to use it, of putting himself right with the nation after no long delay. But he never understood that power only attends sympathetic leadership. He contented himself with putting himself technically in the right, and with resting his case on the favorable decisions of the judges. Under any circumstances, neither the training nor the position of judges is such as to make them fit to be the final arbiters of political disputes. They are accustomed to declare what the law is, not

what it ought to be. These judges, moreover, were not in the position to be impartial. They had been selected by the king, and were liable to be deprived of their office when he saw fit. In the course of Charles' reign two chief justices and one chief baron were dismissed or suspended. Besides the ordinary judges, there were the extraordinary tribunals, the court of High Commission, nominated by the crown to punish ecclesiastical offenders, and the court of Star Chamber, composed of the privy councillors and the chief justices, and, therefore, also nominated by the crown, to inflict fine, imprisonment, and even corporeal mutilation, on lay offenders. Those who rose up in any way against the established order were sharply punished.

The harsh treatment of individuals only calls forth resistance when constitutional morality has sunk deeply into the popular mind. The ignoring of the feelings and prejudices of large classes has a deep effect. Charles' foreign policy, and his pretentious claim to the sovereignty of the British seas, demanded the support of a fleet, which might indeed be turned to good purpose in offering a counterpoise to the growing navies of France and Holland. The increasing estrangement between him and the nation made him averse to the natural remedy of a parliament, and he reverted to the absolute practices of the Middle Ages, in order that he might strain them far beyond the warrant of precedent to levy a tax under the name of ship-money, first on the port towns and then on the whole of England. Payment was resisted by John Hampden, a Buckinghamshire squire; but the judges declared that the king was in the right (1638). Yet the arguments used by Hampden's lawyers sunk deeply into the popular mind, and almost every man in England who was called on to pay the tax looked upon the king as a wrong-doer under the forms of law.

Any government which, from want of sympathy with the feelings of the masses, offends the sense of right by the levy of taxes for which it does not venture to ask their consent, is also likely to treat with unfeeling harshness the religion of thinking men. So it was in the reign of Charles. He gave authority to William Laud, since 1633 Archbishop of Canterbury, to carry out his design of reducing the English Church to complete uniformity of ceremonial. The practice in most churches differed from the laws under which public worship was intended to be guided. Laud did his best to carry out the letter of the law, under the belief that uniformity of worship would produce unity of spirit, and in some cases he explained away the law in the direction in which he wished it to be bent. The communion table was removed from the center of the church to the east end, was spoken of as an altar, and was fenced in with rails, at which communicants were expected to kneel. At the same time offense was given to the Puritans by an order that every clergyman should read the Declaration of Sports, in which the king directed that no hindrance should be thrown in the way of those who wished to dance or shoot at the butts on Sunday afternoon. Many of the clergy were suspended or deprived, many emigrated to Holland or New England, and of those who remained a large part bore the yoke with feelings of ill-concealed dissatisfaction. Suspicion was easily aroused that a deep plot existed, of which Laud was believed to be the center, for carrying the nation over to the Church of Rome, a suspicion which seemed to be converted into a certainty when it was known that Panzani and Con, two agents of the Pope, had access to Charles, and that in 1637 there was a sudden accession to the number of converts to the Papal Church amongst the lords and ladies of the court. The rising feeling may be traced in the poems of

Milton. *L'Allegro* and *Il Penseroso* — probably written in 1632 — are full of thoughts which denote him to have been at that time of no special school. The *Comus*, written in 1634, is stamped with the impress of the Puritan ideal without the Puritan asperity; whilst the *Lycidas*, in 1637, contains lines directed aggressively against the system of Laud as serving merely as a stepping-stone to Rome.

In the summer of 1638 Charles had long ceased to reign in the affections of his subjects. But their traditional loyalty had not yet failed, and if he had not called on them for fresh exertions, it is possible that the coming revolution would have been long delayed. Men were ready to shout applause in honor of Puritan martyrs like Prynne, Burton, and Bastwick, whose ears were cut off in 1637, or in honor of the lawyers who argued such a case as that of Hampden. But no signs of active resistance had yet appeared. Unluckily for Charles, he was likely to stand in need of the active coöperation of Englishmen. He had attempted to force a new Prayer-Book upon the Scottish nation. A riot at Edinburgh, in 1637, quickly led to national resistance, and when, in November, 1638, the General Assembly at Glasgow set Charles' orders at defiance, he was compelled to choose between tame submission and immediate war. In 1639 he gathered an English force, and marched toward the border. But English laymen, though asked to supply the money which he needed for the support of his army, deliberately kept it in their pockets, and the contributions of the clergy and of official persons were not sufficient to enable him to keep his troops long in the field. The king, therefore, though it best to agree to terms of pacification. Misunderstandings broke out as to the interpretation of the treaty, and Charles, having discovered that the Scotch were intriguing with France, fancied that England, in hatred of its ancient foe, would now be ready to rally to his standard. After an interval of eleven years, in April, 1640, he once more called a parliament.

The Short Parliament, as it was called, demanded redress of grievances, the abandonment of the claim to levy ship-money, and a complete change in the ecclesiastical system. Charles thought it would not be worth while, even to conquer Scotland on such terms, and dissolved parliament. A fresh war with Scotland followed. Wentworth, now Earl of Strafford, became the leading adviser of the king. With all the energy of his disposition he threw himself into Charles' plans, and left no stone unturned to furnish the new expedition with supplies and money. But no skillfulness of a commander can avail when soldiers are determined not to fight. The Scotch crossed the Tweed, and Charles' army was well pleased to fly before them. In a short time the whole of Northumberland and Durham were in the hands of the invaders. Charles was obliged to leave these two counties in their hands as a pledge for the payment of their expenses; and he was also obliged to summon parliament to grant him the supplies which he needed for that object.

When the Long Parliament met in November, 1640, they were in a position in which no parliament had been before. Though nominally the Houses did not command a single soldier, they had in reality the whole Scottish army at their back. By refusing supplies they would put it out of the king's power to fulfil his engagements to that army, and it would immediately pursue its onward march to claim its rights.

Hence there was scarcely anything which the king could venture to deny the Commons. Under Pym's leadership, they began by asking the head of Strafford. Nominally he was accused of a number of acts of oppression in the north of England and in Ireland. His

real offense lay in his attempt to make the king absolute, and in the design with which he was credited of intending to bring over an Irish army to crush the liberties of England. If he had been a man of moderate abilities he might have escaped. But the Commons feared his commanding genius too much to let him go free. They began with an impeachment. Difficulties arose, and the impeachment was turned into a bill of attainder. The king abandoned his minister, and the execution of Strafford left Charles without a single man of supreme ability on his side. Then came rapidly a succession of blows at the supports by which the Tudor monarchy had been upheld. The courts of Star Chamber and High Commission and the Council of the North were abolished. The raising of tonnage and poundage without a parliamentary grant was declared illegal. The judges who had given obnoxious decisions were called to answer for their fault, and were taught that they were responsible to the House of Commons as well as the king. Finally, a bill was passed providing that the existing House should not be dissolved without its own consent.

It was clearly a revolutionary position which the House had assumed. But it was assumed because it was impossible to expect that a king who had ruled as Charles had ruled could take up a new position as the exponent of the feelings which were represented in the Commons. As long as Charles lived he could not be otherwise than an object of suspicion; and yet, if he were dethroned there was no one available to fill his place. There arose therefore two parties in the House, one ready to trust the king, the other disinclined to put any confidence in him at all. The division was the sharper because it coincided with a difference in matters of religion. Scarcely any one wished to see the Laudian ceremonies upheld. But the members who favored the king, and who formed a considerable minority, wished to see a certain liberty of religious thought, together with a return under a modified episcopacy to the forms of worship which prevailed before Laud had taken the church in hand. The other side, which had the majority by a few votes, wished to see the Puritan creed prevail in all its strictness, and were favorable to the establishment of the Presbyterian discipline. The king, by his unwise action, threw power into the hands of his opponents. He listened with tolerable calmness to their Grand Remonstrance, but his attempt to seize the five members whom he accused of high treason made a good understanding impossible. The Scottish army had been paid off some months before, and civil war was the only means of deciding the quarrel.

At first the fortune of war wavered. Edgehill was a drawn battle (1642), and the campaign of 1643, though it was on the whole favorable to the king, gave no decisive results. Before the year was at an end parliament invited a new Scottish army to intervene in England. As an inducement, the Solemn League and Covenant was signed by all Parliamentarian Englishmen, the terms of which were interpreted by the Scotch to bind England to submit to Presbyterianism, though the most important clauses had been purposely left vague, so as to afford a loophole of escape.

The battle of Marston Moor, with the defeat of the Royalist forces in the north, was the result. But the battle did not improve the position of the Scots. They had been repulsed, and the victory was justly ascribed to the English contingent. The composition of that contingent was such as to have a special political significance. Its leader was Oliver Cromwell. It was formed by men who were fierce Puritan enthusiasts, and who for the very reason that the intensity of their religion separated them from the mass of their countrymen,

had learnt to uphold with all the energy of zeal the doctrine that neither Church nor State had a right to interfere with the forms of worship which each congregation might select for itself. They were commonly known as Independents, from the communities which had sprung up under the name of Separatists in the reign of Elizabeth, and which maintained the principle of congregational independence; though many other sects found a place in their ranks.

The principle advocated by the army, and opposed by the Scotch and the majority of the House of Commons, was liberty of sectarian association. Some years earlier, under the dominion of Laud, another principle had been proclaimed by Chillingworth and Hales, that of liberty of thought to be maintained within the unity of the Church. Both these movements conduced to the ultimate establishment of toleration—the one by permitting those to worship as they saw fit whose faith was too definite to enable them to be content with outward forms by which their particular belief was not clearly expressed, the other by allowing those whose charity was greater than their polemical zeal to find a common ground to worship side by side with others whose beliefs did not entirely coincide with their own.

For the present the Independents were to have their way. The Presbyterian leaders, Essex and Manchester, were not successful leaders. The army was remodeled after Cromwell's pattern, and the king was finally crushed at Naseby (1645). The next year (1646) he surrendered to the Scots. Then followed two years of fruitless negotiation, in which, after the Scotch abandoned the king to the English parliament, the army took him out of the hands of the parliament, while each in turn tried to find some basis of arrangement on which he might appear to sit on the throne without again misdirecting the government. Such a basis could not be found, and when Charles stirred up a fresh civil war and a Scottish invasion (1648), the leaders of the army vowed that, if victory was theirs, they would bring him to justice. To do this it was necessary to drive out a large number of the members of the House of Commons, by what was known as Pride's Purge, and to obtain from the mutilated Commons the dismissal of the House of Lords, and the establishment of a high court of justice, before which the king was brought to trial, and sentenced to death. He was beheaded on a scaffold outside the windows of Whitehall (1649).

The government set up was a government by the committees of a council of state nominally supporting themselves on the House of Commons, though the members who still retained their places were so few that the council of state was sufficiently numerous to form a majority in the House. During eleven years the nation passed through many vicissitudes in its forms of government. These forms take no place in the gradual development of English institutions, and have never been referred to as affording precedents to be followed. To the student of political science, however, they have a special interest of their own, as they show that when men had shaken themselves loose from the chain of habit and prejudice, and had set themselves to build up a political shelter under which to dwell, they were irresistibly attracted by that which was permanent in the old constitutional forms of which the special development had of late years been so disastrous. After Cromwell had suppressed resistance in Ireland (1649), had conquered Scotland (1650) and had overthrown the son of the late king, the future Charles II., at Worcester (1651), the value of government by an assembly was tested and found wanting. After Cromwell expelled the remains of the Long Parliament (1653) and had set up another assembly of nominated members

that second assembly was found equally wanting. It was necessary to have recourse to one head of the executive government, controlling and directing its actions. Cromwell occupied this position as Lord Protector. He did all that it was in his power to do to prevent his authority from degenerating into tyranny. He summoned two parliaments, of only one House, and with the consent of the parliament he erected a second House, so that he might have some means of checking the Lower House without constantly coming into personal collision with its authority. As far as form went, the constitution in 1658, so far as it differed from the Stuart constitution, differed for the better. But it suffered from one fatal defect. It was based on the rule of the sword. The only substitute for traditional authority is the clearly expressed expression of the national will, and it is impossible to doubt that if the national will had been expressed it would have swept away Cromwell and his system. The majority of the upper and middle classes, which had united together against Laud, was now reunited against Cromwell. The Puritans themselves were but a minority, and of that minority considerable numbers disliked the free liberty accorded to the sects. Whilst the worship of the Church of England was proscribed, every illiterate and frenzied enthusiast was allowed to harangue at his pleasure. Those who cared little for religion felt themselves insulted when they saw a government with which they had no sympathy ruling by means of an army which they dreaded and detested. Cromwell did his best to avert a social revolution, and to direct the energies of his supporters into the channels of merely political change. But he could not prevent, and it cannot be said that he wished to prevent, the rise of men of ability from positions of social inferiority. The nation had striven against the arbitrary government of the king; but it was not prepared to shake off the predominance of that widely spreading aristocracy which, under the name of country gentlemen, had rooted itself too deeply to be easily passed by. Cromwell's rule was covered with military glory, and there can be no doubt that he honestly applied himself to solve domestic difficulties as well. But he reaped the reward of those who strive for something better than the generation in which they live is able to appreciate. His own faults and errors were remembered against him. He tried in vain to establish constitutional government and religious toleration. When he died (1658) here remained branded on the national mind two strong impressions which it took more than a century to obliterate — the dread of the domination of a standing army, and the abhorrence of the very name of religious zeal.

The eighteen months which followed deepened the impression thus formed. The army had appeared a hard master when it lent its strength to a wise and sagacious rule. It was worse when it undertook to rule in its own name, to set up and pull down parliaments and governments. The only choice left to the nation seemed to be one between military tyranny and military anarchy. Therefore it was that when Monk advanced from Scotland and declared for a free parliament, there was little doubt that the new parliament would recall the exiled king, and seek to build again on the old foundations.

The Restoration was effected by a coalition between the Cavaliers, or followers of Charles I., and the Presbyterians who had originally opposed him. It was only after the nature of a great reaction that the latter should for a time be swamped by the former. When the Long Parliament of the Restoration met in 1661, the Act of Uniformity entirely excluded all idea of reform in the Puritan direction, and ordered the expulsion from their benefices of all clergymen who refused to express ap-

proval of the whole of the Book of Common Prayer (1662). A previous statute, the Corporation Act (1661), ordered that all members of corporations should renounce the Covenant and the doctrine that subjects might in any case rightfully use force against the king, and should receive the sacrament after the forms of the Church of England. The object for which Laud had striven, the compulsory imposition of uniformity, thus became part of the law of the land.

The doctrine of non-resistance was evidently that by which, at this time, the loyal subject was distinguished from those whom he stigmatized as disloyal. Yet even the most loyal found that, if it was wrong to take up arms against the king, it might be right to oppose him in other ways. Even the Cavaliers did not wish to see Charles II. an absolute sovereign. They wished to reconstruct the system which had been violently interrupted by the events of the autumn of 1641, and to found government on the coöperation between king and parliament, without defining to themselves what was to be done if the king's conduct became insufferable. Openly, indeed, Charles II. did not force them to reconsider their position. He did not thrust members of the Commons into prison, or issue writs for ship-money. He laid no claim to taxation which had not been granted by parliament. But he was extravagant and self-indulgent, and he wanted more money than they were willing to supply. A war with the Dutch broke out, and there were strong suspicions that Charles applied money voted for the fleet to the maintenance of a vicious and luxurious court. Against the vice and luxury, indeed, little objection was likely to be brought. The over-haste of the Puritans to drill England into ways of morality and virtue had thrown at least the upper classes into a slough of revelry and baseness. But if the vice did not appear objectionable the expense did, and a new chapter in the financial history of the government was opened when the Commons, having previously gained control over taxation, proceeded to vindicate their right to control expenditure.

As far, indeed, as taxation was concerned, the Long Parliament had not left its successor much to do. The abolition of feudal tenures and purveyance had long been demanded, and the conclusion of an arrangement which had been mooted in the reign of James I. is only notable as affording one instance out of many of the tendency of a single class to shift burdens off its own shoulders. The predominant landowners preferred the grant of an excise which would be taken out of all pockets to a land-tax which would exclusively be felt by those who were relieved by the abolition of the tenures. The question of expenditure was constantly telling on the relations between the king and the House of Commons. After the Puritan army had been disbanded, the king resolved to keep on foot a petty force of 5,000 men, and he had much difficulty in providing for it out of a revenue which had not been intended by those who voted it to be used for such a purpose. Then came the Dutch war, bringing with it a suspicion that some at least of the money given for paying sailors and fitting out ships was employed by Charles on very different objects. The Commons accordingly, in 1665, succeeded in enforcing, on precedents derived from the reigns of Richard II. and Henry IV., the right of appropriating the supplies granted to special objects; and with more difficulty they obtained, in 1666, the appointment of a commission empowered to investigate irregularities in the issue of moneys. Such measures were the complement of the control over taxation which they had previously gained, and as far as their power of supervision went, it constituted them and not the king the directors of the course of government. If this result was not

immediately felt, it was because the king had a large certain revenue voted to him for life, so that, for the present at least, it was only his extraordinary expenses which could be brought under parliamentary control. Nor did even the renewal of parliamentary impeachment, which ended in the banishment of Lord Chancellor Clarendon (1667), bring on any direct collision with the king. If the Commons wished to be rid of him because he upheld the prerogative, the king was equally desirous to be rid of him because he looked coldly on the looseness of the royal morals.

The Commons followed up their blow by passing the Test Act, making the reception of the sacrament according to the forms of the Church of England, and the renunciation of the doctrine of transubstantiation, a necessary qualification for office. At once it appeared what a hold the members of the obnoxious Church had had upon the administration of the state. The lord high admiral, the lord treasurer, and a secretary of state refused to take the test. The lord high admiral was the heir to the throne, the king's brother, the Duke of York.

Charles, as usual, bent before the storm. In Danby he found a minister whose views answered precisely to the views of the existing House of Commons. Like the Commons, Danby wished to silence both Roman Catholics and Dissenters. Like the Commons, too, he wished to embark on a foreign policy hostile to France. But he served a master who regarded Lewis less as a possible adversary than as a possible paymaster. Sometimes Danby was allowed to do as he liked, and the marriage of the Duke of York's eldest daughter Mary to her cousin the prince of Orange was the most lasting result of his administration. More often he was obliged to follow where Charles led, and Charles was constantly ready to sell the neutrality of England for large sums of French gold. At last one of these negotiations was detected, and Danby, who was supposed to be the author instead of the unwilling instrument of the intrigue, was impeached. In order to save his minister, Charles dissolved parliament (1678).

Charles could not have chosen a more unlucky time for his own quiet. The strong feeling against the Roman Catholics had been quickened into a flame by a great imposture. The inventors of the so-called Popish plot charged the leading English Roman Catholics with a design to murder the king. Judges and juries alike were maddened with excitement, and listened greedily to the lies which poured forth from the lips of profligate informers. Innocent blood was shed in abundance.

The excitement had its root in the uneasy feeling caused by the knowledge that the heir to the throne was a Roman Catholic. Three parliaments were summoned and dissolved. In each parliament the main question at issue between the Commons and the crown was the Exclusion Bill, by which the Commons sought to deprive the Duke of York of his inheritance; and it was notorious that the leaders of the movement wished the Crown to descend to the king's illegitimate son, the Duke of Monmouth.

Events were to show that it was a wise provision which led the Whigs to seek to exclude the Duke of York from the throne. But their plan suffered under two faults, the conjunction of which was ruinous to them for the time. In the first place, their choice of Monmouth as the heir was infelicitous. Not only was he under the stain of illegitimacy, but his succession excluded the future succession of Mary, whose husband, the Prince of Orange, was the hope of Protestant Europe. In the second place, drastic remedies are never generally acceptable when the evil to be remedied is still in the future. When, in the third of the short parliaments held

at Oxford, the Whigs rode armed into the city, the nation decided that the future danger of a Roman Catholic succession was incomparably less than the immediate danger of another civil war. Loyal addresses poured in to the king. For the four remaining years of his reign he ruled without summoning any parliament. Whigs were brought before prejudiced juries and partial judges. Their blood flowed on the scaffold. The charter of the city of London was confiscated. The reign of the Tories was unquestioned. Yet it was not quite what the reign of the Cavaliers had been in 1660. The violence of the Restoration had been directed primarily against Puritanism, and only against certain forms of government so far as they allowed Puritans to gain the upper hand. The violence of the Tories was directed against rebellion and disorder, and only against dissenters so far as they were believed to be fomenters of disorder. Religious hatred had less part in the action of the ruling party, and even from its worst actions a wise man might have predicted that the day of toleration was not so far off as it seemed.

The accession of James II. (1685) put the views of the opponents of the Exclusion Bill to the test. A new Parliament was elected, almost entirely composed of decided Tories. A rebellion in Scotland, headed by the Earl of Argyll, and a rebellion in England, headed by the Duke of Monmouth, were easily suppressed. But the inherent difficulties of the king's position were not thereby overcome. It would have been hard, in days in which religious questions occupied so large a space in the field of politics, for a Roman Catholic sovereign to rule successfully over a Protestant nation. James set himself to make it, in his case, impossible. It may be that he did not consciously present to himself any object other than fair treatment for his co-religionists. On the one hand, however, he alienated even reasonable opponents by offering no guarantees that equality so gained would not be converted into superiority by the aid of his own military force and of the assistance of the French king; whilst on the other hand he relied, even more strongly than his father had done, on the technical legality which exalted the prerogative in defiance of the spirit of the law. He began by making use of the necessity of resisting Monmouth to increase his army, under the pretext of the danger of a repetition of the late rebellion, and in the regiments thus levied he appointed many Roman Catholic officers who had refused to comply with the Test Act. Rather than submit to the gentlest remonstrance, he prorogued Parliament, and proceeded to obtain from the Court of King's Bench a judgment in favor of his right to dispense with all penalties due by law, in the same way that his grandfather had appealed to the judges in the matter of the post-nati. But not only was the question put by James II. of far wider import than the question put by James I., but he deprived the court to which he applied of all moral authority by previously turning out of office the judges who were likely to disagree with him, and by appointing new ones who were likely to agree with him. A Court of High Commission of doubtful legality was subsequently erected (1686) to deprive or suspend clergymen who had made themselves obnoxious to the court, whilst James appointed Roman Catholics to the leadership of certain colleges at Oxford. The legal support given him by judges of his own selection was fortified by the military support of an army collected at Hounslow Heath, and a Roman Catholic, the Earl of Tyrconnel, was sent as lord-deputy to Ireland (1687) to organize a Roman Catholic army on which the king might fall back if his English forces proved insufficient for his purpose.

Another event which seemed likely to consolidate his power was in reality the signal of his ruin. The queen bore him a son. There was thus no longer a strong

probability that the king would be succeeded at no great distance of time by a Protestant heir. Popular incredulity expressed itself in the assertion that, as James had attempted to gain his ends by means of a packed bench of judges and a packed House of Commons, he had now capped the series of falsifications by the production of a supposititious heir. The leaders of both parties combined to invite the Prince of Orange to come to the rescue of the religion and laws of England. He landed on November 5th, at Brixham. Before he could reach London every class of English society had declared in his favor. James was deserted even by his army. He fled to France, and a convention parliament, summoned without the royal writ, declared that his flight was equivalent to abdication, and offered the crown in joint sovereignty to William and Mary (1689).

The Revolution, as it was called, was more than a mere change of sovereigns. It finally transferred the ultimate decision in the state from the king to parliament. What parliament had been in the fifteenth century with the House of Lords predominating, that parliament was to be again in the end of the seventeenth century with the House of Commons predominating. That House of Commons was far from resting on a wide basis of popular suffrage. The county voters were the freeholders; but in the towns, with some important exceptions, the electors were the richer inhabitants who formed the corporations of the boroughs, or a body of select householders more or less under the control of some neighboring land owner. A House so chosen was an aristocratic body but it was aristocratic in a far wider sense than the House of Lords was aristocratic. The trading and legal classes found their representation there by the side of the great owners of land. The House drew its strength from its position as a true representative of the effective strength of the nation in its social and economical organization.

Such a revolution might have ended in the substitution of the despotism of a class for the despotism of a man. Many causes combined to prevent this result. The landowners, who formed the majority of the House were not elected directly, as was the case with the nobility of the French States General, by their own class, but by electors who, though generally loyal to them, would have broken off from them if they had attempted to make themselves masters of their fellow-citizens. No less important was the almost absolute independence of the judges, begun at the beginning of the reign, by the grant of office to them during good behavior instead of during the king's pleasure, and finally secured by the clause in the Act of Settlement, in 1701, which protected them against dismissal except on the joint address of both Houses of Parliament. Such an improvement, however, finds its full counterpart in another great step already taken.

The supremacy of the House of Commons would have been an evil of no common magnitude, if it had made government impossible. Yet this was precisely what it threatened to do. Sometimes the dominant party in the House pressed with uncrupulous rancor upon its opponents. Sometimes the majority shifted from side to side as the House was influenced by passing gusts of passion or sympathy, so that, as it was said at the time, no man could foretell one day what the House would be pleased to do on the next. Against the first of these dangers William was, to a great extent, able to guard, by the exercise of his right of dissolution, so as to appeal to the constituencies, which did not always share in the passions of their representatives. But the second danger could not be met in this way. The only cure for waywardness is responsibility, and not only was this precisely what the Commons had not learned to feel, but it

was that which it was impossible to make them feel directly. A body composed of several hundred members cannot carry on government with the requisite steadiness of action and clearness of insight. Such work can only fitly be intrusted to a few, and whenever difficult circumstances arise, it is necessary that the action of those few be kept in harmony by the predominance of one. The scheme on which William hit, by the advice of the Earl of Sunderland, was that which has since been known as Cabinet government. He selected as his ministers the leading members of the two Houses who had the confidence of the majority of the House of Commons. In this way, the majority felt an interest in supporting the men who embodied their own opinions, and fell in turn under the influence of those who held them with greater prudence or ability than fell to the lot of the average members of the House. All that William doubtless intended was to acquire a ready instrument to enable him to carry on the war with success. In reality he had re-founded, on a new basis, the government of England. His own personal qualities were such that he was able to dominate over any set of ministers; but the time would come when there would be a sovereign of inferior powers. Then the body of ministers would step into his place. The old rude arrangements of the Middle Ages had provided by frequent depositions that an inefficient sovereign should cease to rule, and those arrangements had been imitated in the case of Charles I. and James II. Still the claim to rule had, at least from the time of Henry III., been derived from hereditary descent, and the interruption, however frequently it might occur, had been regarded as something abnormal, only to be applied where there was an absolute necessity to prevent the wielder of executive authority from setting at defiance the determined purpose of the nation. After the Revolution, not only had the king's title been so changed as to make him more directly than ever dependent on the nation, but he now called into existence a body which derived its own strength from its conformity with the wishes of the representatives of the nation.

The time came when he needed again the support of the nation. The death of Charles II. the heirless king of the huge Spanish Monarchy, had long been expected. Since the peace of Ryswick, William and Lewis XIV. had come to terms by two successive partition treaties for a division of those vast territories in such a way that the whole of them should not fall into the hands of a near relation either of the King of France or of the Emperor, the head of the House of Austria. When the death actually took place in 1700, William seemed to have no authority in England whatever; and Lewis was therefore encouraged to break his engagements, and to accept the whole of the Spanish inheritance for his grandson, who became Philip V. of Spain. William saw clearly that such predominance of France in Europe would lead to the development of pretensions unbearable to other states. But the House of Commons did not see it, even when the Dutch garrisons were driven by French troops out of the posts in the Spanish Netherlands which they had occupied for many years (1701).

William had prudently done all that he could to conciliate the Tory majority. In the preceding year (1700) he had given office to a Tory ministry, and he now (1701) gave his assent to the Act of Settlement, which secured the succession of the crown to the House of Hanover to the exclusion of all Roman Catholic claimants, though it imposed several fresh restrictions on the prerogative. William was indeed wise in keeping his feelings under control. The country sympathized with him more than the Commons did, and when the House imprisoned the gentlemen deputed by the freeholders of

Kent to present a petition asking that its loyal addresses might be turned into bills of supply, it simply advertised its weakness to the whole country.

The reception of this Kentish petition was but a foretaste of the discrepancy between the Commons and the nation, which was to prove the marked feature of the middle of the century now opening. For the present the House was ready to give way. It requested the king to enter into alliance with the Dutch. William went yet further in the direction in which he was urged. He formed an alliance with the emperor as well as with the States General to prevent the union of the crowns of France and Spain, and to compel France to evacuate the Netherlands. An unexpected event came to give him all the strength he needed. James II. died, and Lewis acknowledged his son as the rightful king of England. Englishmen of both parties were stung to indignation by the insult. William dissolved parliament, and the new House of Commons, Tory as it was by a small majority, was eager to support the king. It voted men and money according to his wishes. England was to be the soul of the Grand Alliance against France. But before a blow was struck William was thrown from his horse. He died on March 8, 1702. "The man," as Burke said of him, "was dead, but the Grand Alliance survived in which King William lived and reigned."

Upon the accession of Anne, war was at once commenced. The Grand Alliance became, as William would have wished, a league to wrest the whole of the Spanish dominions from Philip, in favor of the Austrian Archduke Charles. It found a chief of supreme military and diplomatic genius in the Duke of Marlborough. His victory at Blenheim (1705) drove the French out of Germany. His victory of Ramillies (1706) drove them out of the Netherlands. In Spain, Gibraltar was captured by Rooke (1704) and Barcelona by Peterborough (1705). Prince Eugene relieved Turin from a French siege, and followed up the blow by driving the besiegers out of Italy.

As soon as the demand for a vigorous prosecution of the war relaxed, the Whigs could but rely on their domestic policy, in which they were strongest in the eyes of posterity but weakest in the eyes of contemporaries. It was known that they looked for the principle on which the queen's throne rested to the national act of the Revolution rather than to the birth of the sovereign as the daughter of James II., whilst popular feeling preferred, however inconsistently, to attach itself to some fragment of hereditary right. What was of greater consequence was that it was known that they were the friends of the dissenters, and that their leaders, if they could have had their way, would not only have maintained the Toleration Act, but would also have repealed the Test Act. In 1709 a sermon preached by Doctor Sacheverel denounced toleration and the right of resistance in tones worthy of the first days of the Restoration. Foolish as the sermon was, it was but the reflection of folly which was widely spread among the rude and less educated classes. The Whig leaders unwisely took up the challenge and impeached Sacheverel. The Lords condemned the man, but they condemned him to an easy sentence. His trial was the signal for riot. Dissenting chapels were sacked to the cry of High Church and Sacheverel. The queen, who had personal reasons for disliking the Whigs, dismissed them from office (1710), and a Tory House of Commons was elected amidst the greatest excitement to support the Tory ministry of Harley and St. John.

After some hesitation the new ministry made peace with France, and the Treaty of Utrecht, stipulating for the permanent separation of the crowns of France and Spain, and, assigning Milan, Naples, and the Spanish

Netherlands to the Austrian claimant, accomplished all that could reasonably be desired, though the abandonment to the vengeance of the Spanish Government of our Catalan allies, and the base desertion of our Continental confederates on the very field of action, brought dishonor on the good name of England. The Commons gladly welcomed the cessation of the war. The approval of the Lords had been secured by the creation of twelve Tory peers.

The accession of George I. brought with it the predominance of the Whigs. They had on their side the royal power, the greater part of the aristocracy, the dissenters, and the higher trading and commercial classes. The Tories appealed to the dislike of dissenters prevalent among the country gentlemen and the country clergy, and to the jealousy felt by the agricultural classes towards those who enriched themselves by trade. Such a feeling, if it was aroused by irritating legislation, might very probably turn to the advantage of the exiled house, especially as the majority of Englishmen were to be found on the Tory side. It was therefore advisable that Government should content itself with as little action as possible, in order to give time for old habits to wear themselves out. The landing of the Pretender in Scotland (1715), and the defeat of a portion of his army which had advanced to Preston—a defeat which was the consequence of the apathy of his English supporters, and which was followed by the complete suppression of rebellion—gave increased strength to the Whig Government. But they were reluctant to face an immediate dissolution, and the Septennial Act was passed (1716) to extend to seven years the duration of parliaments, which had been fixed at three years by the Triennial Act of William and Mary. Under General Stanhope an effort was made to draw legislation in a more liberal direction. The Occasional Conformity Act and the Schism Act were repealed (1719); but the majorities on the side of the Government were unusually small, and Stanhope, who would willingly have repealed the Test Act so far as it related to dissenters, was compelled to abandon the project as entirely impracticable. The Peerage Bill, introduced at the same time to limit the royal power of creating peers, was happily thrown out in the Commons. It was proposed partly from a desire to guard the Lords against such a sudden increase of their numbers as had been forced on them when the treaty of Utrecht was under discussion, and partly to secure the Whigs in office against any change in the royal councils in a succeeding reign. It was, in fact, conceived by men who valued the immediate victory of their principles more than they trusted to the general good sense of the nation.

The excitement following on the bursting of the South Sea Bubble, and the death or ruin of the leading ministers, brought Walpole to the front (1721). As a man of business when men of business were few in the House of Commons, he was eminently fit to manage the affairs of the country. But he owed his long continuance in office especially to his sagacity. He clearly saw, what Stanhope had failed to see, that the mass of the nation was not fitted as yet to interest itself wisely in affairs of government, and that, therefore, the rule must be kept in the hands of the upper classes. But he was too sensible to adopt the coarse expedient which had commended itself to Stanhope, and he preferred humoring the masses to contradicting them.

The struggle of the preceding century had left its mark in every direction on the national development. Out of the reaction against Puritanism had come a widely-spread reaction of morals, and also, as far as the educated class was concerned, an eagerness for the discussion of all social and religious problems. The

fierce excitement of political life had stirred up the fountains of thought, and the most anciently received doctrines were held of little worth until they were brought to the test of reason. It was a time when the pen was more powerful than the sword, when a secretary of state would treat with condescension a witty pamphleteer, and when such a pamphleteer might hope, not in vain, to become a secretary of state.

It was in this world of reason and literature that the Whigs of the Peerage Bill moved. Walpole perceived that there was another world which understood none of these things. With cynical insight he discovered that a great Government cannot rest on a clique, however distinguished. If the mass of the nation was not conscious of political wants, it was conscious of material wants. The merchant needed protection for his trade; the voters gladly welcomed election day as bringing guineas to their pockets. Members of Parliament were ready to sell their votes for places, for pensions, for actual money. The system was not new, as Danby is credited with the discovery that a vote in the House of Commons might be purchased. But with Walpole it reached its height.

Walpole's administration lasted long enough to give room for some feeble expression of this feeling. When George I. was succeeded by George II. (1727) Walpole remained in power. His eagerness for the possession of that power which he desired to use for his country's good, together with the incapacity of two kings born and bred in a foreign country to take a leading part in English affairs, completed the change which had been effected when William for the first time entrusted the conduct of government to a united Cabinet. There was now for the first time a prime minister in England, a person who was himself a subject imposing harmonious action on the Cabinet. The change was so gradually and silently effected that it is difficult to realize its full importance. So far, indeed, as it only came about through the incapacity of the first two kings of the House of Hanover, it might be obliterated, and was in fact to a great extent obliterated by a more active successor. But so far as it was the result of general tendencies, it could never be obliterated. In the ministries in which Somers and Montagu, on the one hand, and Harley and St. John on the other, had taken part, there was no prime minister except so far as one member of the administration dominated over his colleagues by the force of character and intelligence. In the reign of George III. even North and Addington were universally acknowledged by that title, though they had little claim to the independence of action of a Walpole or a Pitt.

In 1739 a popular excitement arose for a declaration of war against Spain. Walpole believed that war to be certainly unjust, and likely to be disastrous. He had, however, been so accustomed to give way to popular pressure that he did not perceive the difference between a wise and timely determination to leave a right action undone, in the face of insuperable difficulties, and an unwise and cowardly determination to do that which he believed to be wrong and imprudent. If he had now resigned rather than bemean himself by acting against his conscience, it is by no means unlikely that he would have been recalled to power before many years were over. As it was, the failures of the war recoiled on his own head, and in 1742 his long ministry came to an end.

After a short interval a successor was found in Henry Pelham. All the ordinary arts of corruption which Walpole had practiced were continued, and to them were added arts of corruption which Walpole had disdained to practice. He at least understood that there

were certain principles in accordance with which he wished to conduct public affairs, and he had driven colleague after colleague out of office rather than allow them to distract his method of government. Pelham and his brother, the cowardly intriguing Duke of Newcastle, had no principles of government whatever. They offered place to every man of parliamentary skill or influence. There was no opposition, because the ministers never attempted to do anything which would arouse opposition, and because they were ready to do anything called for by any one who had power enough to make himself dangerous; and in 1743, they embarked on a useless war with France in order to please the king, who saw in every commotion on the Continent some danger to his beloved Hanoverian possessions.

At most times in the history of England such a ministry would have been driven from office by the roused outcry of an offended people. In the days of the Pelhams, government was regarded as lying too far outside the all-important private interests of the community to make it worth while to make any effort to rescue it from the degradation into which it had fallen; yet the Pelhams had not been long in power before this serene belief that the country could get on very well without a government in any real sense of the word was put to the test. In 1745 Charles Edward, the son of the Pretender, landed in Scotland. He was followed by many of the Highland clans, always ready to draw the sword against the constituted authorities of the Lowlands; and even in the Lowlands, and especially in Edinburgh, he found adherents, who still felt the sting inflicted by the suppression of the national independence of Scotland. The English army was in as chaotic a condition as its government, and Charles Edward inflicted a complete defeat on a force which met him at Prestonpans. Before the end of the year the victor, at the head of 5,000 men, had advanced to Derby. But he found no support in England, and the mere numbers brought against him compelled him to retreat, to find defeat at Culloden in the following year (1746). The war on the Continent had been waged with indifferent success. The victory of Dettingen (1743), and the glorious defeat of Fontenoy (1745), had achieved no objects worthy of English intervention, and the Peace of Aix-la-Chapelle put an end, in 1748, to hostilities which should never have been commenced. The government pursued its inglorious career as long as Henry Pelham lived. He had at least some share of the financial ability of Walpole, and it was not till he died, in 1754, that the real difficulties of a system which was based on the avoidance of difficulties had fairly to be faced.

The change which was needed was not such as was to be expected from any mere re-adjustment of the political machine. Those who cared for religion or morality had forgotten that man was an imaginative and emotional being. Defenders of Christianity and of deism alike appealed to the reason alone. Enthusiasm was treated as a folly or a crime, and earnestness of every kind was branded with the name of enthusiasm. The higher order of minds dwelt with preference upon the beneficent wisdom of the Creator. The lower order of minds treated religion as a kind of life-assurance against the inconvenience of eternal death.

Upon such a system as this human nature was certain to revenge itself. The preaching of Wesley and Whitfield appealed direct to the emotions. They preached the old Puritan doctrine of conversion, and called upon each individual not to understand, or to admire, or to act, but vividly to realize the love and mercy of God. In all this there was nothing new. What was new was that Wesley added an organization, in which each of his followers unfolded to one another the secrets of their

heart, and became accountable to his fellows. Large as the numbers of the Wesleys ultimately became, their influence is not to be measured by their numbers. The double want of the age, the want of spiritual earnestness and the want of organized coherence, would find satisfaction in many ways which would have seemed strange to Wesley, but which were, nevertheless, a continuance of the work which he began.

As far as government was concerned, when Henry Pelham died (1754), the lowest depth of baseness seemed to have been reached. The Duke of Newcastle, who succeeded his brother, looked on the work of corruption with absolute pleasure, and regarded genius and ability as an awkward interruption of that happy arrangement which made men subservient to flattery and money. Whilst he was in the very act of trying to drive from office all men who were possessed of any sort of ideas, he was surprised by a great war. In America, the French settlers in Canada and the English settlers on the Atlantic coast were falling to blows for the possession of the vast territories drained by the Ohio and its tributaries. In India, Frenchmen and Englishmen had striven during the last war for authority over the native states round Pondicherry and Madras, and the conflict threatened to break out anew. When war commenced in earnest, and the reality of danger came home to Englishmen, by the capture of Minorca (1756), there arose a demand for a more capable government than any which Newcastle could offer. Terrified by the storm of obloquy which he aroused, he fled from office. A government was formed, of which the soul was William Pitt. Pitt was, in some sort, to the political life of Englishmen what Wesley was to their religious life. He brought no new political ideas into their minds, but he ruled them by the force of his character and the example of his purity. His weapons were trust and confidence. He appealed to the patriotism of his fellow-countrymen, to their imaginative love for the national greatness, and he did not appeal in vain. He perceived instinctively that a large number, even of those who took greedily the bribes of Walpole and the Pelhams, took them, not because they loved money better than their country, but because they had no conception that their country had any need of them at all. It was a truth, but it was not the whole truth. The great Whig families rallied under Newcastle and drove Pitt from office (1757). But, if Pitt could not govern without Newcastle's corruption, neither could Newcastle govern without Pitt's energy. At last a compromise was effected, and Newcastle undertook the work of bribing, while Pitt undertook the work of governing.

The war which had already broken out, the Seven Years' War (1756-1763), was not confined to England alone. By the side of the duel between France and England, a war was going on upon the Continent, in which Austria—with its allies, France, Russia, and the German princes—had fallen upon the new kingdom of Prussia and its sovereign Frederick II. England and Prussia, therefore, necessarily formed an alliance. Different as the two Governments were, they were both alike in recognizing, in part at least, the condition of progress. The generations which have succeeded the generation of Pitt and Frederick have learned gradually the necessity of seeking strength from the embodiment of popular feeling in a representative assembly, and of seeking order from the organization of scientific knowledge. Even in Pitt's day England, however imperfectly, rested its strength on the popular will. Even in Frederick's day Prussia was ruled by administrators selected for their special knowledge. Neither France nor Austria had any conception of the necessity of fulfilling these requirements. Hence the strength of England

and of Prussia. The war seems to be a mere struggle for territory. There is no feeling in either Pitt or Frederick, such as there was in the men who contended half a century later against Napoleon, that they were fighting the battles of the civilized world. There is something repulsive as well in the enthusiastic nationality of Pitt as in the cynical nationality of Frederick. Pitt's sole object was to exalt England to a position in which she might fear no rival, and might scarcely look upon a second. But in so doing he exalted that which, in spite of all that had happened, best deserved to be exalted. The habits of individual energy fused together by the inspiration of patriotism conquered Canada. The unintelligent over-regulation of the French government could not maintain the colonies which had been founded in happier times. In 1758 Louisburg was taken and the mouth of the St. Lawrence guarded against France. In 1759 Quebec fell before Wolfe, who died at the moment of victory. In the same year the naval victories of Lagos and Quiberon Bay established the supremacy of the British at sea. The battle of Plassey (1757), had laid Bengal at the feet of Clive; and Cote's victory at Wandewash (1760), led to the final ruin of the relics of French authority in southern India. When George II. died (1760), England was the first maritime and colonial power in the world.

In George III., the king once more became an important factor in English politics. From his childhood he had been trained by his mother and his instructors to regard the breaking down of the power of the great families as the task of his life. In this he was walking in the same direction as Pitt was walking. If the two men could have worked together in the same direction, England might have been spared many misfortunes. Unhappily, the king could not understand Pitt's higher qualities, his bold confidence in the popular feeling, and his contempt for corruption and intrigue. And yet the king's authority was indispensable to Pitt, if he was to carry on his conflict against the great families with success. When the war came to an end, as it must come to an end sooner or later, Pitt's special predominance, derived as it was from his power of breathing a martial spirit into the fleets and armies of England, would come to an end too. Only the king, with his hold upon the traditional instincts of loyalty and the force of his still unimpaired prerogative, could, in ordinary times, hold head against the wealthy and influential aristocracy. Unfortunately, George III. was not wise enough to deal with the difficulty in a high-minded fashion. With a well-intentioned but narrow mind, he had nothing in him to strike the imagination of his subjects. He met influence with influence, corruption with corruption, intrigue with intrigue. Unhappily, too, his earliest relations with Pitt involved a dispute on a point on which he was right and Pitt was wrong. In 1761 Pitt resigned office, because neither the king nor the cabinet were willing to declare war against Spain in the midst of the war with France. As the war with Spain was inevitable, and as, when it broke out in the following year (1762), it was followed by triumphs for which Pitt had prepared the way, the presence of the great war-minister appeared to be fully established. But it was his love of war, not his skill in carrying it on, which was really in question. He would be satisfied with nothing short of the absolute ruin of France. He would have given England that dangerous position of supremacy which was gained for France by Lewis XIV. in the seventeenth century, and by Napoleon in the nineteenth century. He would have made his country still more haughty and arrogant than it was, till other nations rose against it, as they have three times risen against France, rather than submit to

the intolerable yoke. It was a happy thing for England that peace was signed (1763).

Even as it was, a spirit of contemptuous disregard of the rights of others had been roused, which would not be easily allayed. The king's premature attempt to secure a prime minister of his own choosing in Lord Bute (1761) came to an end through the minister's incapacity (1763). George Grenville, who followed him, kept the king in leading-strings in reliance upon his parliamentary majority. Something, no doubt, had been accomplished by the incorruptibility of Pitt. The practice of bribing members of parliament by actual presents in money came to an end, though the practice of bribing them by place and pension long continued. The arrogance which Pitt displayed toward foreign nations was displayed by Grenville toward classes of the population of the British dominions. It was enough for him to establish a right. He never put himself in the position of those who were to suffer by its being put in force.

The first to suffer from Grenville's conception of his duty were the American colonies. The mercantile system which had sprung up in Spain in the sixteenth century held that colonies were to be entirely prohibited from trading except in the mother country. Every European country had adopted this view, and the acquisition of fresh colonial dominions by England, at the peace of 1763, had been made not so much through lust of empire as through love of trade. Of all English colonies, the American were the most populous and important. Their proximity to the Spanish colonies in the West Indies had naturally led to a contraband trade. To this trade Grenville put a stop, as far as lay in his power.

Obnoxious as this measure was in America, the colonists had acknowledged the principle on which it was founded too long to make it easy to resist it. Another step of Grenville's met with more open opposition. Even with all the experience of the century which followed, the relations between a mother country and her colonies are not easy to arrange. If the burden of defense is to borne in common, it can hardly be left to the mother country to declare war, and to exact the necessary taxation, without the consent of the colonies. If, on the other hand, it is to be borne by the mother country alone, she may well complain that she is left to bear more than her due share of the weight. The latter alternative forced itself upon the attention of Grenville. The British parliament, he held, was the supreme legislature, and, as such, was entitled to raise taxes in America to support the military forces needed for the defense of America. The act (1765) imposing a stamp tax on the American colonies was the result.

As might have been expected, the Americans resisted. For them, the question was precisely that which Hampden had fought out in the case of ship-money. As far as they were concerned, the British parliament had stepped into the position of Charles I. If Grenville had remained in office he would probably have persisted in his resolution. He was driven from his post by the king's resolution no longer to submit to his insolence.

A new ministry was formed under the Marquis of Rockingham, composed of some of those leaders of the Whig aristocracy who had not followed the Grenville ministry. They were well-intentioned, but weak, and without political ability; and the king regarded them with distrust, only qualified by his abhorrence of the ministry which they superseded.

As soon as the bad news came from America, the ministry was placed between two recommendations. Grenville, on the one hand, advised that the tax should be enforced. Pitt, on the other, declared that the

British parliament had absolutely no right to tax America, though he held that it had the right to regulate, or in other words to tax, the commerce of America for the benefit of the British merchant and manufacturer. Between the two the government took a middle course. It obtained from parliament a total repeal of the Stamp act, but it also passed a Declaratory Act, claiming for the British parliament the supreme power over the colonies in matters of taxation, as well as in matters of legislation.

It is possible that the course thus adopted was chosen simply because it was a middle course. But it was probably suggested by Edmund Burke, who was then Lord Rockingham's private secretary, but who for some time to come was to furnish thinking to the party to which he attached himself. Burke carried into the world of theory those politics of expediency of which Walpole had been the practical originator. He held that questions of abstract right had no place in politics. It was therefore as absurd to argue with Pitt that England had a right to regulate commerce, as it was to argue with Grenville that England had a right to levy taxes. All that could be said was that it was expedient in a wide-spread empire that the power of final decision should be lodged somewhere, and that it was also expedient not to use that power in such a way as to irritate those whom it was the truest wisdom to conciliate.

The weak side of this view was the weak side of all Burke's political philosophy. Like all great innovators, he was intensely conservative where he was not an advocate of change. With new views on every subject relating to the exercise of power, he shrunk even from entertaining the slightest question relating to the distribution of power. He recommended to the British parliament the most self-denying wisdom, but he could not see that in its relation to the colonies the British Parliament was so constituted as to make it entirely unprepared to be either wise or self-denying. It is true that if he had thought out the matter in this direction he would have been led further than he or any other man in England or America was at that time prepared to go. If the British Parliament was unfit to legislate for America, and if, as was undoubtedly the case, it was impossible to create a representative body which was fit to legislate, it would follow that the American colonies could only be fairly governed as practically independent states, though they might possibly remain, like the great colonies of our own day, in a position of alliance rather than of dependence. It was because the issues opened led to changes so far greater than the wisest statesman then perceived, that Pitt's solution, logically untenable as it was, was preferable to Burke's. Pitt would have given bad reasons for going a step in the right direction. Burke gave excellent reasons why those who were certain to go wrong should have the power to go right.

Scarcely were the measures relating to America passed when the King turned out the ministry. The new ministry was formed by Pitt, who was created Lord Chatham (1766), on the principle of bringing together men who had shaken themselves loose from any of the different Whig cliques. Whatever chance the plan had of succeeding was at an end when Chatham's mind temporarily gave way under stress of disease (1767). Charles Townshend, a brilliant headstrong man, led Parliament in the way which had been prepared by the Declaratory Act, and laid duties on tea and other articles of commerce entering the ports of America.

It was impossible that the position thus claimed by the British parliament toward America should affect America alone. The habit of obtaining money otherwise than by the consent of those who are required to pay it would be certain to make parliament careless of

the feelings and interests of that great majority of the population at home which was unrepresented in Parliament. The resistance of America to the taxation imposed was therefore not without benefit to the natives of the mother-country. Already there were signs of a readiness in parliament to treat even the constituencies with contempt. In 1763, in the days of the Grenville ministry, John Wilkes, a profligate and scurrilous writer, had been arrested on a general warrant — that is to say, a warrant in which the name of no individual was mentioned — as the author of an alleged libel on the king, contained in No. 45 of *The North Briton*. He was a member of parliament, and as such was declared by Chief Justice Pratt to be privileged against arrest. In 1768 he was elected member for Middlesex. The House of Commons expelled him. He was again elected, and again expelled. The third time the Commons gave the seat, to which Wilkes was a third time chosen, to Colonel Luttrell, who was far down in the poll. Wilkes thus became the representative of a great constitutional principle, the principle that the electors have a right to choose their representatives without restriction, saving by the regulations of the law.

For the present the constitution of the American colonists, and of the defenders of Wilkes at home, was confined within the compass of the law. Yet in both cases it might easily pass beyond that compass, and might rest itself upon an appeal to the duty of governments to modify the law and to enlarge the basis of their authority, when law and authority have become too narrow.

As regards America, though Townshend died, the government persisted in his policy. As resistance grew stronger in America, the king urged the use of compulsion. If he had not the wisdom of the country on his side, he had its prejudices. The arrogant spirit of Englishmen made them contemptuous toward the colonists, and the desire to thrust taxation upon others than themselves, made the new colonial legislation popular. In 1770 the king made Lord North prime minister. He had won the object on which he had set his heart. A new Tory party had sprung up, not distinguished, like the Tories of Queen Anne's reign, by special ecclesiastical policy, but by their acceptance of the king's claim to nominate ministers, and so to predominate in the ministry himself.

Unhappily the Opposition, united in the desire to conciliate America, was divided on questions of home policy. Chatham would have met the new danger by parliamentary reform, giving increased voting power to the freeholders of the counties. Burke from principle, and his noble patrons mainly from lower motives, were opposed to any such change. As Burke had wished the British parliament to be supreme over the colonies, in confidence that this supremacy would not be abused, so he wished the great land-owning connection resting on the rotten boroughs to rule over the unrepresented people, in confidence that this power would not be abused. Amidst these distractions the king had an easy game to play. He had all the patronage of the government in his hands, and beyond the circle which was influenced by gifts of patronage he could appeal to the ignorance and self-seeking of the nation, with which, though he knew it not, he was himself in the closest sympathy.

No wonder resistance grew more vigorous in America. In 1773 the inhabitants of Boston threw ship-loads of tea into the harbor rather than pay the obnoxious duty. In 1774 the Boston Port Bill deprived Boston of its commercial rights, whilst the Massachusetts Government Bill took away from that colony the ordinary political liberties of Englishmen. The first skirmish of the inevitable war was fought at Lexington in 1775. In 1776

the thirteen colonies united in the Congress issued their Declaration of Independence. England put forth all its strength to beat down resistance. She increased her armies by hirelings bought from the German princes. But not only did no military genius appear on the English side, but the distance across the Atlantic was so great, and the immense spaces of even the settled part of the American continent were so large, that it was impossible to effect that conquest which seemed so easy at a distance. The difficulties of the Americans, too, were enormous, but they had the advantage of being at home; and in Washington they found a leader worthy of the great cause for which he fought. In 1777 a British army under Burgoyne capitulated at Saratoga; and in the same year France, eager to revenge the disasters of the Seven Years' War, formed an alliance with the revolted colonies as free and independent states, and was soon joined by Spain.

Chatham, who was ready to make any concession to America short of independence, and especially of independence at the dictation of France, died in 1778. The war was continued for some years with varying results; but in 1781, the capitulation of a second British army under Cornwallis at Yorktown was a decisive blow, which brought home to the minds of the dullest the assurance that the conquest of America was an impossibility.

Before this event happened there had been a great change in public feeling in England. The increasing weight of taxation gave rise in 1780, to a great meeting of the freeholders of Yorkshire, which in turn gave the signal for a general agitation for the reduction of unnecessary expense in the government. To this desire Burke gave expression in his bill for economical reform, though he was unable to carry it in the teeth of interested opposition. The movement in favor of economy was necessarily also a movement in favor of peace; and when the surrender of Yorktown was known (1782), Lord North at once resigned office.

The new ministry formed under Lord Rockingham comprised not only his own immediate followers, of whom the most prominent was Charles Fox, but the followers of Chatham, of whom Lord Shelburne was the acknowledged leader. A treaty of peace acknowledging the independence of the United States of America was at once set on foot; and the negotiation with France was rendered easy by the defeat of a French fleet by Rodney, and by the failure of the combined forces of France and Spain to take Gibraltar.

Already the ministry on which such great hopes had been placed had broken up. Rockingham died in July, 1782. The two sections of which the government was composed had different aims. The Rockingham section, which now looked up to Fox, rested on aristocratic connection and influence; the Shelburne section was anxious to gain popular support by active reforms, and to gain over the king to their side. Judging by past experience, the combination might well seem hopeless, and honorable men like Fox might easily regard it with suspicion. But Fox's allies took good care that their names should not be associated with the idea of improvement. They pruned Burke's Economical Reform Bill till it left as many abuses as it suppressed; and though the bill prohibited the grant of pensions above £300, they hastily gave away pensions of much larger value to their own friends before the bill had received the royal assent. They also opposed a bill for parliamentary reform brought in by young William Pitt. When the king chose Shelburne as prime minister, they refused to follow him, and put forward the incompetent duke of Portland as their candidate for the office. The struggle was thus renewed on the old ground.

king's right to select his ministers. But while the king now put forward a minister notoriously able and competent to the task, his opponents put forward a man whose only claim to office was the possession of large estates. They forced their way back to power by means as unscrupulous as their claim to it was unjustifiable. They formed a coalition with Lord North, whose politics and character they had denounced for years. The coalition, as soon as the peace with America and France had been signed (1783), drove Shelburne from office. The Duke of Portland became the nominal head of the government, Fox and North its real leaders.

Such a ministry could not afford to make a single blunder. The king detested it, and the assumption by the Whig houses of a right to nominate the head of the government without reference to the national interests could never be popular. The blunder was soon committed. Burke, hating wrong and injustice with a bitter hatred, had described in the government of British India by the East India Company a disgrace to the English name. For many of the actions of that government no honorable man can think of uttering a word of defense. The helpless natives were oppressed and robbed by the Company and its servants in every possible way. Burke drew up a bill, which was adopted by the coalition government, for taking all authority in India out of the hands of the Company, and even placing the company's management of its own commercial affairs under control. The governing and controlling body was naturally to be a council appointed at home. The question of the nomination of this council at once drew the whole question within the domain of party politics. The whole patronage of India would be in its hands, and, as parliament was then constituted, the balance of parties might be more seriously affected by the distribution of that patronage than it would be now. When, therefore, it was understood that the Government bill meant the council to be named in the bill for four years, or, in other words, to be named by the coalition ministry, it was generally regarded as an unblushing attempt to turn a measure for the good government of India into a measure for securing the ministry in office. The bill of course passed the Commons. When it came before the Lords, it was thrown out in consequence of a message from the king that he would regard any one who voted for it as his enemy.

The contest had thus become one between the influence of the crown and the influence of the great houses. Constitutional historians, who treat the question as one of merely theoretical politics, leave out of consideration this essential element of the situation, and forget that, if it was wrong for the king to influence the Lords by his message, it was equally wrong for the ministry to acquire for themselves fresh patronage with which to influence the Commons. But there was now, what there had not been in the time of Walpole and the Pelhams, a public opinion ready to throw its weight on one side or the other. The county members still formed the most independent portion of the representation, and there were many possessors of rotten boroughs who were ready to agree with the county members rather than with the great land owners. In choosing Pitt, the young son of Chatham, for his prime minister, as soon as he had dismissed the coalition, George III. gave assurance that he wished his counsels to be directed by integrity and ability. After a struggle of many weeks, parliament was dissolved (1784), and the new House of Commons was prepared to support the king's minister by a large majority.

The supremacy of intelligence in the political world was, for the time, represented in Pitt. In 1784 he passed an India Bill, which left the commerce and all

except the highest patronage of India in the hands of the East India Company, but which erected a department of the home government named the Board of Control, to compel the Company to carry out such political measures as the government saw fit. A bill for parliamentary reform was, however, thrown out by the opposition of his own supporters in parliament, whilst outside parliament there was no general desire for a change in a system which for the present produced such excellent fruits. Still more excellent was his plan of legislation for Ireland. Irishmen had taken advantage of the weakness of England during the American War to enforce upon the ministry of the day, in 1780 and 1782, an abandonment of all claim on the part of the English Government, and the English judges to interfere in any way with Irish affairs. From 1782, therefore, there were two independent legislatures within the British Isles—the one sitting at Westminster and the other sitting in Dublin. With these political changes Fox professed himself to be content. Pitt, whose mind was open to wider considerations, proposed to throw open commerce to both nations by removing all the restrictions placed on the trade of Ireland with England and with the rest of the world. The opposition of the English parliament was only removed by concessions continuing some important restrictions upon Irish exports, and by giving the English parliament the right of initiation in all measures relating to the regulation of the trade which was to be common to both nations. The Irish parliament took umbrage at the superiority claimed by England, and threw out the measure as an insult, which, even as it stood, was undeniably in favor of Ireland. The lesson of the incompatibility of two coördinate legislatures was not thrown away upon Pitt.

In 1786 the commercial treaty with France opened that country to English trade, and was the first result of the theories laid down by Adam Smith ten years previously. The first attack upon the horrors of the slave trade was made in 1788; and in the same year, in the debates on the Regency Bill caused by the king's insanity, Pitt defended against Fox the right of parliament to make provisions for the exercise of the powers of the crown when the wearer was permanently or temporarily disabled from exercising his authority.

When the king recovered, he went to St. Paul's to return thanks, on April 23, 1789. The enthusiasm with which he was greeted showed how completely he had the nation on his side. All the hopes of liberal reformers were now on his side. All the hopes of moral and religious men were on his side as well. The seed sown by Wesley had grown to be a great tree. A spirit of thoughtfulness in religious matters and of moral energy was growing in the nation, and the king was endeared to his subjects as much by his domestic virtues as by his support of the great minister who acted in his name. The happy prospect was soon to be overclouded. On May 4th, eleven days after the appearance of George III. at St. Paul's, the French States General met at Versailles.

By the great mass of intelligent Englishmen the change was greeted with enthusiasm. It is seldom that one nation understands the tendencies and difficulties of another; and the mere fact that power was being transferred from an absolute monarch to a representative assembly led superficial observers to imagine that they were witnessing a mere repetition of the victory of the English parliament over the Stuart kings. In fact, that which was passing in France was of a totally different nature from the English struggle of the seventeenth century. In England, the conflict had been carried on for the purpose of limiting the power of the king. In

France, it was begun in order to sweep away an aristocracy in Church and State which had become barbarously oppressive. It was not therefore a conflict touching simply on the political organization of the State. The whole social organization of the country was at stake, and the struggle would be carried on at every point of the territory, and would involve every class of society. In such a conflict, therefore, there was nothing necessarily antagonistic to the maintenance of the most absolute royal power. If there had been a king on the throne who had understood the needs of the times, and who could have placed himself without afterthought at the head of the national movement, he would have been stronger for all good purposes than Lewis XIV. had ever been. Unhappily, it was not in Lewis XVI. to do anything of the kind. Well intentioned and desirous to effect the good of his people, he was not clear-headed enough to understand how it was to be done, or strong-willed enough to carry out any good resolutions to which he might be brought. The one thing impossible for a king was to be neutral in the great division which was opening in French society; and Lewis was too much a creature of habit to throw off the social ties which united him to the aristocracy. It was the knowledge that the king was in heart on the wrong side that made his continuance to rule impossible. Undoubtedly the best thing that the French could have done, after the king's leanings were known, would have been to dethrone him. But this was not a step which any nation was likely to take in a hurry; and the constitution drawn up by the States General after it passed into the form of the National Assembly was necessarily grounded on suspicion. The one indispensable requisite for the working of a constitution is, that it shall be possible to maintain a certain degree of harmony between the various functionaries who are intrusted with the work. Such a harmony was impossible between Lewis and the French nation. Among the higher order of minds there might be a desire for liberty, and the word liberty was on the lips of every one. But the thought of liberty was rarely to be found. It was by the passion of equality that the nation was possessed. For the new spirit it was necessary to find new institutions. The old ones had broken down from absolute rottenness, and if they had been other than they were, they were certain to be used on the anti-national side. The force must be given to the nation, not to the aristocracy—not to the king, the ally of the aristocracy. Yet all this had to be done when the mass of the nation was rude and uneducated, ignorant and unversed in political life to the last degree, and when, too, it had been taught by the long course of monarchical government to see force placed above right, and was therefore all the more inclined to solve its difficulties by force. What wonder, therefore, if violence took the place of argument, if mob-rule stepped in to enforce the popular over the unpopular reasoning, and the king soon found that he was practically a prisoner in the hands of his subjects?

In proportion as the French Revolution turned away from the path which English ignorance had marked out for it, Englishmen turned away from it in disgust. As they did not understand the aims of the French Revolutionists, they were unable to make that excuse for even so much of their conduct as admits of excuse. Three men, Fox, Burke, and Pitt, however, represented three varieties of opinion into which the nation was very unequally divided.

Fox, generous and trustful toward the movements of large masses of men, had very little intellectual grasp of the questions at issue in France. He treated the struggle as one simply for the establishment of free institutions, and when at last the crimes of the leaders became patent

to the world, he contented himself with lamenting the unfortunate fact, and fell back on the argument that though England could not sympathise with the French tyrants, there was no reason why she should go to war with them.

Burke, on the other hand, while he failed to understand the full tendency of the Revolution for good as well as for evil, understood it far better than any Englishman of that day understood it.

Burke did not content himself with pointing out speculatively the evils which he foreboded for the French. He perceived clearly that the effect of the new French principles could no more be confined to French territory than the principles of Protestantism in the sixteenth century could be confined to Saxony. He knew well that the appeal to abstract reason and the hatred of aristocracy would spread over Europe like a flood, and, as he was in the habit of considering whatever was most opposed to the object of his dislike to be wholly excellent, he called for a crusade of all established governments against the anarchical principles of dissolution which had broken loose in France.

Pitt occupied ground apart from either Fox or Burke. He had neither Fox's sympathy for popular movements nor Burke's intellectual appreciation of the immediate tendencies of the Revolution. Hence, while he pronounced against any active interference with France, he was an advocate of peace, not because he saw more than Fox or Burke, but because he saw less. He fancied that France would be so totally occupied with its own troubles that it would cease for a long time to be dangerous to other nations. A resolution formed on grounds so hopelessly futile was not likely to stand the test of time.

Even if France had been spared the trial of external pressure, it is almost certain that she would have roused resistance by some attempt to maintain her new principles abroad. When the King of Prussia coalesced with the emperor in 1792 to force her to reestablish the royal authority, she broke out into a passion of self-asserting defiance. The king was dethroned, and preparations were made to try him for his life as an accomplice of the invaders. A republic was proclaimed, and in its name innocent persons, whose only crime was to belong to the noble class by birth and feeling, were massacred by hundreds. The grim suspicion which clothed itself with cruelty in the capital became patriotic resistance on the frontier. Before the end of the year the invasion was repulsed, Savoy occupied, the Austrian Netherlands overrun, and the Dutch republic threatened.

Very few governments in Europe were so rooted in the affections of their people as to be able to look without terror on the challenge thus thrown out to them. The English Government was one of those very few. No mere despotism was here exercised by the king. No broad impassable line here divided the aristocracy from the people. The work of former generations of Englishmen had been too well done to call for that breach of historical continuity which was a dire necessity in France. There was much need of reform. There was no need of a revolution. The whole of the upper and middle classes, with few exceptions, belong together in a fierce spirit of resistance; and the mass of the lower classes, especially in the country, were too well off to wish for change. The spirit of resistance to revolution quickly developed into a spirit of resistance to reform, and those who continued to advocate changes more or less after the French model were treated as the enemies of mankind. A fierce hatred of France, and of all that attached itself to France, became the predominating spirit of the nation.

Such a change in the national mind could not but affect the constitution of the Whig party. The reason

ing of Burke would, in itself, have done little to effect its disruption. But the great landowners, who contributed so strong an element in it, composed the very class which had most to fear from the principles of the revolution. The old questions which had divided them from the king and Pitt, in 1783, had dwindled into nothing before the appalling question of the immediate present. They made themselves the leaders of the war party, and they knew that that party comprised almost the whole of the parliamentary classes.

What could Pitt do but surrender? The whole of the intellectual basis of his foreign policy was swept away when it became evident that the Continental war would bring with it an accession of French territory. He did not abandon his opinions. His opinions rather abandoned him. A wider intelligence might have held that, let France gain what territorial aggrandizement it might upon the Continent, it was impossible to resist such changes until the opponents of France had so purified themselves as to obtain a hold upon the moral feelings of mankind. Pitt could not take this view; perhaps no man in his day could be fairly expected to take it. He did not indeed declare war against France; but he sought to set a limit to her conquests in the winter, though he had not sought to set a limit to the conquests of the coalesced sovereigns in the preceding summer. He treated with supercilious contempt the National convention, which had dethroned the king and proclaimed a republic. Above all, he took up a declaration by the Convention, that they would give help to all peoples struggling for liberty against their respective governments, as a challenge to England. The horrors caused in England by the trial and execution of Lewis XVI. completed the estrangement between the two countries, and though the declaration of war came from France (1793), it had been in great part brought about by the bearing of England and its Government.

In appearance, the great Whig landowners gave their support to Pitt, and in 1794, some of their leaders, the Duke of Portland, Lord Fitzwilliam, and Mr. Wyndham, entered the cabinet to serve under him. In reality it was Pitt who had surrendered. The ministry and the party by which it was supported might call themselves Tory still. But the great reforming policy of 1784 was entirely at an end. Strong as it was, the government did not know its own strength. It saw sedition and revolution everywhere. It twisted loose talk into criminal intent. It covered the country with its spies. The slightest attempt to concert measures for obtaining reform were branded as revolutionary violence. Men who would otherwise have been content with declaiming in favor of reform, were goaded into actual sedition. The government sought and obtained additional powers from parliament. Fine, imprisonment, and transportation were dealt out by the low courts in lavish measure. The Reign of Terror in France was answered by a reign of violence in England, modified by the political habits of a nation trained to freedom, but resting on the same spirit of fear and intolerance. In November, 1794, an attempt was made actually to shed blood. Hardy, Horne Tooke, and Thelwall, were brought to trial on a charge of high treason, for issuing invitations to a national convention intended to promote changes of the greatest magnitude in the government. Happily, the jury refused to see, in this certainly dangerous proceeding, a crime worthy of death, and its verdict of not guilty saved the nation the disgrace of meeting out the extreme penalty of high treason to an attempt to hold a public meeting for the redress of grievances.

The public feeling, in fact, regained its composure sooner than the ministry. The upper and middle classes became conscious of their own strength, and, though

reform and reformers were as unpopular as ever, the instruments by which reform might be gained hereafter were left untouched for the use of a future generation. The Sedition and Treason Bills, passed in 1795, were limited in their duration, and were never actually put in force.

In the meanwhile, Pitt's management of the war was leading, as far as the Continent was concerned, to failure after failure. Nothing else was possible. He had none of the abilities of a war minister, and his system of sending detached expeditions to various points was not calculated to attain success. Nor is it likely that, even if he had been more competent in this respect, he would have accomplished anything worthy of the efforts which he put forth. It has been said that if he had roused the passions of men, and had proclaimed a holy war upon the Continent, he would have had a better chance of gaining his ends. But passions cannot be artificially excited, and a holy war pre-supposes a cause which, if it is not holy in itself, will at least be supposed by men to be so. Except under special circumstances, however, it was impossible to rouse enthusiasm against the French Republic. Toulon might be succored and abandoned in 1793; La Vendée might have fallacious hopes held out to it in 1794. Frenchmen who were shocked at the habitual employment of the guillotine were yet not inclined to rise at the bidding of a foreign invader against a government which, at all events, stood manfully up for the integrity of French territory, whilst the long habit of submission to absolute rule had made the nation slow to take the conduct of affairs into its own hands. The middle classes on the Continent, too, were on the side of the peasants, and looked to French principles if not to French armies as offering an amelioration of their lot. The Austrian Netherlands, regained from France in 1793, were reconquered by France in 1794; and a British force under the Duke of York did nothing to avert the misfortune. The land was annexed to the territory of the French Republic. Early in 1795 the Dutch Netherlands were revolutionized and constituted into a republic in alliance with France. Austria continued the contest alone, receiving large sums of money from England, and doing very little in return.

If England could do little for the Continent, she could do enough to insure her own safety. Howe's victory of June 1st, (1794), inflicted the first of a long series of defeats on the French navy. An attempt in 1795, to support the French royalists by a landing in Quiberon Bay ended in failure, but Ceylon and the Cape of Good Hope were taken from the Dutch. The war, however, had become so expensive, and its results were evidently so small, that there was a growing feeling in England in favor of peace, especially as the Reign of Terror had come to an end in 1794, and a regular government, the Directory, had been appointed in 1795. Accordingly, in 1796, Lord Malmesbury was sent to France to treat for peace; but the negotiation was at once broken off by his demand that France should abandon the Netherlands.

The French Government, buoyed up by the successes of General Bonaparte, who was driving the Austrians out of Italy, resolved to attempt an invasion of Ireland. In December, a French fleet, with Hoche on board, sailed for Bantry Bay. Only part of it arrived there, and retreated without effecting any thing. A smaller force, landing in Pembroke-shire, was reduced to surrender.

The French attempted to renew the enterprise in the following year. Spain was now in alliance with France, and it was proposed that a Spanish fleet should join the French fleet and the Dutch fleet for a joint invasion. Jervis defeated the Spanish fleet at St. Vincent, and

Duncan defeated the Dutch fleet at Camperdown (1797). During the same year a mutiny in the fleet at Spithead and St. Helens was quieted by concessions to the reasonable complaints of the sailors; whilst an unreasonable mutiny at the Nore was suppressed by firmness in resistance. A renewed attempt to negotiate peace at Lille had ended in failure, because, though the English were this time ready to abandon the Netherlands to France, they were not ready to give back the Cape of Good Hope to the Dutch and Trinidad to Spain. Before the end of the year England had no ally in Europe excepting Portugal. Bonaparte had dictated to Austria the treaty of Campo Formio.

Isolated as Great Britain was, there was less inclination to make peace in England in 1798, than there had been in 1795. In proportion as France fell into the hands of the less violent but more corrupt of the Revolutionists, the enthusiasm with which her proclamation of principles had once created amongst the class excluded from political power died away; whilst the antagonism aroused by mere military conquest under the conduct of the rapacious Bonaparte was on the increase. The attempt at invasion had aroused the national spirit to stubborn resistance; whilst the government itself, warned by the failure of the proceedings against Hardy and his associates, and freed from the blind terror which had made it violent during the first years of the war, was able to devote its energies unreservedly to carrying on hostilities.

If, however, a French invasion had ever been anything more than a dream, it was because there was one quarter in which misgovernment had created a state of circumstances by which it was absolutely invited. At the end of 1794, Lord Fitzwilliam had been sent to Ireland as lord-lieutenant, had set his face against the vile jobbery, through which the leaders of the Protestant minority governed Ireland, and had thrown himself warmly into the encouragement of Grattan's scheme for the admission of the Catholics to political power. The aggrieved jobbers gained the ear of the king, and in 1795 Fitzwilliam was recalled. Then ensued a scene which has no parallel even in the organized massacres of the French Republic. The Catholics, joined in a society called the United Irishmen, to enforce their claims, if need be by an alliance with France, and the establishment of an independent republic. Deeds of violence precluded any actual attempt at insurrection. The Protestants, under the name of Orangemen, gathered to the support of the government as yeomanry or militia-men. Before long these guardians of the peace had spread terror over all Catholic Ireland. By the lash, by torture, by the defilement of chaste and innocent women, they made their predominance felt. It was in 1796, in the very midst of these abominable horrors, that French ships had appeared, but had been unable to land troops in Bantry Bay. Nevertheless, though no assistance was to be had, the United Irishmen rose in rebellion in 1798. The rebellion was suppressed, and again the militiamen and volunteers were let loose to establish order by massacre and violence. Fortunately, the English Government intervened, and a new lord-lieutenant, the Marquis of Cornwallis, was sent over to Dublin. The raging Protestant aristocracy was held back from further deeds of cruelty and vengeance, and law and order were established so far as it was possible to establish them in a land so torn by hostile factions.

Pitt rose to the occasion. He planned a great scheme of union between the two nations (1799). There was to be one parliament for Great Britain and Ireland, as there was one parliament for England and Scotland. The jobbers who filled the seats in the Irish House of

Commons, and who voted in the name of a people whom they in no sense represented, joined the few members who from a sense of patriotism refused to vote away so easy a source of wealth and influence. Pitt bought the votes which he could not command, and the Irish Parliament, on these ignoble terms, consented to extinguish itself (1800). It depended on the English Government whether this change, by which Ireland lost the semblance of national independence, should be followed by a step in advance for that country in a serious attempt to diminish the evils of Protestant supremacy. That step Pitt had pledged himself to take, and in 1801, he had prepared a measure for admitting the Catholics to political power. The king stood in the way, and Pitt resigned office rather than forfeit his word.

The year which witnessed Pitt's failure in domestic legislation also witnessed his failure in military effort. In 1798, Bonaparte sailed for Egypt, with the intention of setting up a French dominion in the East. The fleet which conveyed him, was annihilated, after his landing, by Nelson at the battle of the Nile. Pitt seized the opportunity of the great general's absence from Europe to organize a second coalition against France. In the campaign of 1799, Italy was regained from France, and in the East, Bonaparte was driven back from Acre by the Turks, headed by Sir Sydney Smith. The news of French disasters brought him hurriedly back to Europe, but, before he could take part in the war, Massena had defeated the coalition at Zurich. A *coup d'état*, however, placed Bonaparte, under the name of first consul, in practical possession of absolute power; and in the following year, his great victory at Marengo (1801), followed up by Moreau's victory at Hohenlinden, enabled him to dictate, as a conqueror, the treaty of Lunéville, by which France entered once more into possession of the frontier of the Rhine. By this treaty, not only was England again isolated, but she found herself exposed to new enemies. Her enforcement of the right of search, to enable her ships to take enemies' goods out of neutral vessels, exasperated even friendly powers, and Russia was joined by Sweden and Denmark to enforce resistance to the claim. It was under these circumstances that Pitt's resignation was announced.

The successor of the great minister was Addington, whose mind was imbued with all the Protestant prejudices of the king, which were, it must be owned, the Protestant prejudices of the nation. He had neither force of character nor strength of intellect. Nelson's victory at Copenhagen, which crushed the naval power of Denmark, and broke up the Northern Alliance, and the landing of Abercromby in Aboukir Bay, followed by the victory of Alexandria, and the consequent evacuation of Egypt by the French, were events prepared by the former administration. Addington's real work was the peace of Amiens (1802), an experimental peace, as the king called it, to see if the first consul could be contented to restrain himself within the very wide limits by which his authority in England was still circumscribed.

In a few months England was made aware that the experiment would not succeed. Interference and annexation became the standing policy of the new French Government. England, discovering how little intention Bonaparte had of carrying out the spirit of the treaty, refused to abandon Malta, as she had engaged to do by the terms of peace.

The war began again, no longer a war against certain principles, and the extension of dominion resulting from the victory of those principles, but against aggressive despotism, wielding military force, conducted by consummate military genius, and setting at naught the right

populations, as well as the claims of rulers. This was the English nation was all but unanimous in resistance. This time its resistance would be sooner or later supported by all that was healthy in Europe.

The spirit of England was fully roused by the news that Bonaparte was preparing invasion. Volunteers were enrolled in defense of the country. There was a general belief that the prime minister was not equal to the crisis. Addington retired and Pitt again became prime minister (1804). He would gladly have joined Fox in forming an administration on a broader basis than his former one. But the king objected to Fox, and some of Pitt's old friends refused to desert the proscribed statesman. Pitt became the head of a ministry of which he was the only efficient member.

England was strong enough to hold her own against Bonaparte, who was now Napoleon, Emperor of the French (1805). Nelson crushed the French and Spanish fleets at Trafalgar, paying with his own life for a victory which put an end to the French naval power for the remainder of the war. The iron of Napoleon's tyranny had not yet entered into the Continental nations sufficiently to rouse them to a truly popular resistance. A third coalition ended in as complete a disaster as that in which the first and second had ended. Austria lost a large part of her force in the capitulation at Ulm, and the Austrian and Russian armies were overpowered at Austerlitz. To effect these victories the force which threatened the invasion of England would necessarily have been withdrawn, even if the result of the battle of Trafalgar had not made the enterprise hopeless. Pitt died shortly after receiving the news of the disasters of his allies (1806).

Pitt's death forced the king to accept a ministry of which Fox was a member. This ministry of All the Talents, as it was called, was not successful in the conduct of the war. Its year of office was the year in which Russia was crushed at Jena, and it dissipated the strength of the English army in unimportant distant expeditions, instead of throwing it upon one spot to aid Prussia or Russia. Its great title to fame is the abolition of the slave trade. Fox's death deprived the ministry of its strongest member, and in the following year an attempt on its part to admit Roman Catholics to the naval and military service of the crown drew from the king a demand for an engagement never to propose any concession to the Catholics. They refused to make any such promise, and were summarily ejected from office. The king's firm stand was popular in England. The reaction against the French Revolution no longer demanded the infliction of penalties upon those who promulgated its doctrines; but a spirit had been produced which was inexorable against all attempts to effect any change for the better. A spirit of blind, unreasoning conservatism had taken the place of the enlightened liberalism of Pitt's earlier days.

The new ministry (1807), under the nominal leadership of the Duke of Portland, had to face Napoleon alone. The battle of Friedland and the peace of Tilsit left him master of the greater part of the continent. Prussia and Austria were already stripped of territory; and as a protector of the Confederation of the Rhine, Napoleon ruled in Germany. Italy was directly subjected to his power. Unable to make war upon England by his fleets and armies, he attempted to subdue her by ruining her commerce. By the Berlin decree (1807), he declared the whole of the British islands to be in a state of blockade, though he had not a single ship at sea to enforce his declaration. He declared all British manufactured goods prohibited wherever his power reached, and excluded from his dominions even neutral ships which had touched at a British port. The

British Government, instead of leaving Napoleon to bear the odium of this attack on neutral commerce, retaliated by Orders in Council conceived in the spirit of his own measure. They declared that all vessels trading with France were liable to seizure, and that all such vessels clearing from a hostile port must touch at a British port to pay customs duties. Napoleon answered by the Milan decree, forbidding neutrals to trade in any article imported from any part of the British dominions. The Orders in Council cost England a war with America. The Berlin and Milan decrees contributed largely to the overthrow of Napoleon's power. Every poor man who was debarred from the means of providing sugar or cloth for his family felt the grievance. The French Republic had declared war against the nobles and the higher classes; Napoleon decreed an oppression which was bitterly felt in every cottage.

In pursuit of his design of forcing the continental system, as he termed it, on Portugal, Napoleon sent Junot to occupy Lisbon, and dethroned the king in 1807. In 1808 he seized on the royal family of Spain, and offered the crown to his brother Joseph. When the Spaniards resisted, the English Government sent troops to the Peninsula. Defeated at Vimeira, Junot was allowed to evacuate Portugal. Napoleon came to the rescue of his lieutenants in Spain, and though he retired without effecting the expulsion of the English, Sir John Moore was slain at Coruña (1809) after inflicting a repulse on the French, and his army was shipped for England. In the summer Wellesley landed in Portugal. Thanks to a fresh aggressive war of Napoleon against Austria, he was able to make his footing sure, though the English ministry sent large forces to perish in the marshes of Walcheren, which might have been better employed in supporting Wellesley at the time when he was driven to retreat before superior numbers after the fruitless victory of Talavera.

In 1810 Wellesley, now known under the name of Wellington, beat back the masses of the French forces under Massena from behind the lines of Torres Vedras. Wellington's resistance was great as a military exploit. But it was far more than a military exploit. It would have been of little avail to linger, however safely, in a corner of Portugal unless he were sure of better allies than the wretched Spanish soldiers who had looked on while he fought for them at Talavera. Wellington saw clearly that there is no ally so strong as the arrogance and injustice of an enemy. His firm hope was that Napoleon would ruin himself, and his hope did not deceive him. In 1812 Napoleon wrecked his finest army on the snows of Russia. Wellington had breathing space to issue forth from Portugal, to seize the frontier fortresses of Ciudad Rodrigo and Badajos, and to win the battle of Salamanca. In 1813 Germany rose against its oppressor. The victory of Leipzig drove the despot over the Rhine, and the victory of Vittoria drove his lieutenants over the Pyrenees. The peoples of Europe were against him. In 1814 he was driven into exile at Elba. Wellington's last victory in this war was won at Toulouse after the abdication of the emperor. In 1815 the emperor returned and seized the throne once more. England and Prussia were the first in the field, and the crushing blow at Waterloo consigned him to a life-long exile at St. Helena.

The war with America, begun in 1812, had been caused by the pressure of the English naval force on neutral commerce under the Orders in Council, which the British Government refused to withdraw till it was too late, and by its claim to impress British seamen when serving on board American ships. The war was brought to an end by the treaty of Ghent (1814).

After a long war the difficulties of the victors are

often greater than those of the conquered. The conquered have their attention directed to the reparation of losses, and are inspired by a patriotic desire to submit to sacrifices for the sake of their country. The victors are in the frame of mind which expects everything to be easy, and they have been accustomed to direct their energies to the business of overpowering foreign enemies, and to hide their eyes from the constant watchfulness required by the needs of the population at home. The war out of which England had come was more than ever calculated to foster this tendency to domestic inaction. To the governing classes despotism, revolution, and reform were almost synonymous. Ministries had succeeded one another; Perceval followed Portland in 1809, and Liverpool followed Perceval in 1812. They were all alike in abhorrence of the very idea of change, in the entire abandonment of those principles of active and intelligent government by which Pitt, whose followers they professed to be, had been always inspired. The supremacy of the proprietors of land, and absolute resistance to reform, were accepted as the rule of government. It made no difference that the king had become permanently insane in 1810, and that the base and sensual Prince of Wales became regent in 1811, till he ascended the throne in 1820 as George IV.

The wrongs of the propertied classes could make themselves heard. In 1815 a corn law had been passed prohibiting the import of corn till the price was above 80s. a quarter. In 1816 the ministry were compelled to submit to the repeal of the property tax, and abandoned the malt tax without pressure. In the meanwhile the agricultural and industrial poor were on the verge of starvation. It would be absurd to draw too close a comparison between the position of the English upper classes at this time and of the French upper classes before the Revolution. But there was the same tendency to use political power as a support for their own material interests, the same neglect of the wants and feelings of those who had none to help them. Those in authority were naturally startled when, at a time when mobs driven to desperation were breaking machines and burning ricks, Cobbett in his *Weekly Political Register* was advocating universal suffrage and annual parliaments.

The Revolution struck down in France appeared to be at the doors in England.

In great part, no doubt, the misery was brought about by causes over which no government could have had any control—the breaking up of the irregular channels through which commerce had flowed during the war. But it was in great part, too, owing to the incidents of the protective system to which the government, widely departing from the track marked out by the early steps of Pitt, was giving effect with the full support of the manufacturing as well as the land owning class.

A riot in London (1816), and a missile thrown at the carriage of the prince regent, roused in parliament something like the repressive violence of 1794. Even the brilliant Canning, the ablest of the disciples of Pitt, declaimed against the parliamentary reform which was now asked for in so many quarters. Acts, of which the suspension of the Habeas Corpus Act was the most severe, were passed to strengthen the hands of the ministry. Seditious meetings, mingled with real or imaginary projects of insurrection, kept the alarm of the upper classes on the stretch. But, as in 1794, juries were suspicious of evidence furnished by spies, and refused to convict on insufficient proof.

The strife between classes culminated in 1819. Large meetings in the open air were held in the great towns, and inflammatory speeches were freely addressed to them. Some of the speakers were arrested. At Stockport the constable in charge of one of the prisoners was

attacked and shot. Birmingham, a great unrepresented town, elected a "legislatorial attorney." A large meeting was summoned at Manchester, another great unrepresented town, to follow the example. The meeting was declared by the magistrates to be illegal, and another meeting was accordingly summoned for the undoubtedly legal purpose of petitioning for parliamentary reform. On the appointed day thousands poured in from the surrounding districts. These men had been previously drilled, for the purpose, as their own leaders asserted, of enabling them to preserve order—for the purpose, as the magistrates suspected, of preparing them to take part in an armed insurrection. A fruitless attempt by the magistrates to arrest a popular agitator named Hunt, as he was preparing to address the crowd, was followed up by a charge of cavalry. Six persons were killed, and a far larger number were wounded in the onslaught. The Manchester massacre divided the kingdom into opposite camps. The use of military violence roused a feeling which struck a chord of old English feeling inherited from the days when Oliver's dragoons had made themselves hated. Large meetings were held to protest, and were addressed by men who had but little sympathy with the previous agitation. Parliament replied by enacting new laws, known as the Six Acts, in restraint of sedition, by sharpening the powers of the administrators of justice. The government took up the same antagonistic position against the right of Englishmen to meet for political purposes which had been taken up in the days of the Reign of Terror. But the very fact that there was no reign of terror on the other side of the Channel weakened its hands. The intelligence of the country was no longer on their side. Lord Sidmouth, the Addington who had made so inefficient a prime minister, was not the man to gain support as home secretary for a policy of severity which was only the disguise of weakness; and Lord Castlereagh, to whom was intrusted the management of foreign affairs, had disgusted all generous minds by his sympathy with despotic rule upon the continent.

Soon after George IV. became king, on the death of his father in 1820, the alienation of the people from the government was marked by the indignation aroused by the attempts of ministers to pass a Bill of Pains and Penalties depriving the new queen of her rights as the wife of the sovereign on the ground of the alleged immorality of her conduct. Even those who suspected or believed that her conduct had not been blameless, were shocked at an attempt made by a king whose own life was one of notorious profligacy, and whose conduct toward his wife had been cruel and unfeeling, to gain his own ends at the expense of one whom he had expelled from his home and had exposed to every form of temptation. The failure of the ministers to carry the Bill of Pains and Penalties was a turning-point in the history of the country. The existing system lost its hold on the moral feelings as well as on the intelligence of the nation. For some time to come, sympathy with parliamentary reform would be confined to the ranks of the Opposition. But in 1822 the death of Lord Castlereagh, who had recently become Lord Londonderry, and the retirement of Lord Sidmouth, placed Canning in the secretaryship for foreign affairs and Peel at the home office.

Canning carried the foreign policy of the country in a new direction. The desire for peace had led the ministry to support the Holy Alliance, a league formed between the absolute sovereigns of the Continent for the suppression in common of all popular movements. Canning broke loose from these old traditions. He made himself loved or hated by offering, without purpose of aggression or aggrandisement, aid or countenance to nations threatened by the great despotic monarchies.

and he thus to some extent placed limits on the power of the military despotisms of Europe. Far more cautious and conservative than Canning, Peel took up the work which had been begun by Romilly, and put an end to the barbarous infliction of the penalty of death for slight offenses. After Canning's short ministry, followed by his death (1827), Peel, after consenting to the abolition of the Test and Corporation Acts, passed a bill, in conjunction with the new prime minister, the Duke of Wellington, to admit Catholics to a seat in Parliament, thus carrying out Pitt's great plan though sadly late. From 1823 to 1828, Huskisson, as president of the board of trade, had been at work loosening the bonds of commercial restriction, and thus carrying out Pitt's policy in another direction.

Such changes, however, were only an installment of those which were demanded by the now ripened public opinion of the country; and as the ministers had not been the initiators of the late concessions to Catholics and Dissenters, they failed to obtain any enthusiastic support from reformers; whilst the fact that the concessions had been made alienated the opponents of reform. On the death of George IV., and the accession of William IV. (1830), a new ministry, a combination of Whigs and Canningites, came into office under Lord Gray.

After a struggle lasting over more than a year, parliamentary reform was carried in the teeth of the opposition of the House of Lords. The franchise was so arranged as to give a very large share of influence to the middle classes of the towns. But, though the landowning aristocracy was no longer supreme, it was by no means thrown on the ground. Lords and gentlemen of large estate and ancient lineage had taken the lead in the reforming cabinet, and the class which had the advantages of leisure and position on its side would have no difficulty in leading, as soon as it abandoned the attempt to stand alone. Fortunately, too, at the time when the institutions of our country were refounded on a broader basis, science had long taken a form which impressed the minds of the people with a reverence for knowledge. Mechanical invention, which had accomplished such wonders in the middle of the eighteenth century, entered upon a fresh period of development when the first passenger railway train was dragged by a locomotive in 1830. Mental power applied to the perfecting of manufacture is not in itself higher than mental power applied in other directions, but it is more easily understood and more readily respected. Experience taught large masses of men to submit to the guidance of those who knew what they did not know. Among statesmen, too, the shock to the old order produced an open mind for the reception of new ideas, and the necessity of basing authority on a wider foundation produced a desire for the spread of education, and gave rise to a popular literature which aimed at interpreting to the multitude the thoughts by which their conduct might be influenced.

The first great act of the reformed parliament bore the impress of the higher mind of the nation. The abolition of slavery (1833) in all British colonies did credit to its heart; the new poor-law (1834) did credit to its understanding. An attempt to strip the Irish Established Church of some of its revenues broke up the ministry. There were differences among the members of the government, and those differences were echoed in the country. The king was frightened at the number of changes demanded, dismissed his ministers, and intrusted the formation of a new government to Sir Robert Peel. The new government abandoned the title of Tory for the title of Conservative.

It was the last time that the sovereign actively inter-

fered in the change of a ministry. The habits of parliament had been much changed since the days of the Regency Bill of 1788, when it was acknowledged by all that a change of ministry would follow the announcement of the accession of the Prince of Wales to power, without any corresponding change in the political temper of parliament. Sinecure appointments had recently been lopped away with an unsparing hand, and the power of corrupting members of parliament had been taken away. The character of the members themselves had risen. They were more deeply interested in political causes themselves, and were too clearly brought under the full light of publicity to make it possible for them to become amenable to those evil influences to which their fathers had succumbed.

The accession of Queen Victoria (1837), did not cut short the tenure of power of the ministry. But the condition of the manufacturing poor was deplorable, and it gave rise to the Chartist agitation for admission to equal political rights with the middle classes. A large body of Chartists threatened an appeal to physical force, and the terror produced by these threats swelled the tide of Conservative reaction. The ministry suffered, too, from a lack of financial ability. They were bold enough where they saw their way. The introduction of the penny postage (1840), was a daring step in the face of embarrassed finances, though it might be supported by the success of the lowering of the newspaper stamp duty in 1836. In 1841 ministers produced free-trade measures as the best remedy for existing evils. But they were already discredited by past ill success in the management of the exchequer, and the hostile majority in the new parliament which carried Peel to power was the expression as much of want of confidence in their ability as a dislike of their measures.

The Conservative ministry followed in the steps of its predecessors. An income-tax was once more laid on (1842), to enable the prime minister to reduce the duties on imports. With respect to corn, he imposed a sliding scale of duties, which shut out foreign corn in seasons of low prices, and allowed it to come in in seasons of high prices. Outside parliament a great association, the Anti-Corn-Law League, with Richard Cobden as its principal spokesman, poured forth unanswerable arguments on behalf of the entire freedom from duty of imported food. It was a fortunate circumstance that the free-trade doctrines won their way by degrees. Victories are not won by reason alone, and it is no wonder that after a parliament in which the landowners were more than usually strong had deprived the manufacturers of protection, the manufacturers discovered that the arguments which had been found good in their case would also hold good in the case of the landowners, especially after they had learnt from their own experience that prosperity was likely to result from the change. At last Sir Robert Peel, shaken by argument and moved by the difficulty of providing for an Irish famine, proposed and carried the repeal of the corn duties (1846).

Peel's resolution broke up his party, and made his retirement from office inevitable. Lord John Russell, who succeeded him, completed the system which Peel had established. The markets were thrown open to foreign as well as to colonial sugar (1846), and the repeal of the navigation laws (1847) enabled the merchant to employ foreign ships and seamen in the conveyance of his goods; and after the short ministry of Lord Derby (1852) another sweeping abolition of duties was carried by Mr. Gladstone as chancellor of the exchequer in the ministry of Lord Aberdeen (1853).

The changes in the direction of free trade were accompanied by a large number of other changes which have

left their mark on the statute-book and on the habits of the people. There is no mistaking the tendency of this great era of legislation under the influence of the reform by which the balance of power had swayed over to the middle classes in 1832. The idea which was steadily making its way was the idea of testing all questions by the interest of the nation as a whole, and of disregarding in comparison the special interests of particular classes. It was this idea which lay at the root of the scientific doctrine on which the free traders founded their practice, and which commended that practice to imaginations as well as to the desires of the mass of the population.

Its combination of thought with popular movement toward equality was but one of the manifestations of that greater movement which had been passing over Europe ever since the beginning of the French Revolution. It was assisted by the character of the material progress of the time. When the soil of the country was covered with a network of railways, when the electric telegraph began to come into use, and all parts of the country were brought into closer connection with one another, when the circulation of books and newspapers became more easy and more rapid, the sense of unity grew stronger with the growth of the means of communication. Nor was it only the sense of the unity of the various parts of the country which was growing. Class drew nearer to class, and the wants, the desires, and the prejudices of each were better understood than they had formerly been. Slowly but surely the influence of education spread. The duty of legislating for the benefit of the weak and the poor was better understood, tempered by an increasing understanding of the evils of interference with liberty of action. In the midst of the tendency to equality, the old English belief in the virtue of liberty was strengthened by the knowledge imparted by a more scientific conception of human nature.

It was impossible that this change should pass over the national mind without giving rise to a desire to include the working class in that body of electors in whose hands political power was ultimately placed. Before the end of Lord John Russell's ministry, a new Reform Bill had been introduced by the Government (1852), but it did not pass into law. Soon after Lord Aberdeen's accession to office the mind of the nation was too completely taken up with foreign affairs to attend to organic changes at home. The attack upon Turkey by the emperor of Russia was resisted by the allied forces of England and France. England was jealous of Russian advancement in the East; and in the hands of the Emperor Nicholas the government of Russia was a despotism so brutal, and was so heavily laid in the scale in opposition to all liberal progress on the Continent, that England and France might well have been regarded as fighting the battle of Europe as well as contending in their own cause. The invasion of the Crimea and the victory of the Alma were followed by the siege of Sebastopol and the successful defense of the heights above Inkermann (1854). Inexperience in war left the English army especially exposed to hardships in the winter; and when operations were resumed in the summer, it was far outnumbered by its French allies, who consequently gained the greater part of the credit of the capture of Sebastopol (1855). In the following winter mistakes had been corrected, and the condition of the English army was worthy of the nation which sent it forth. The peace which was signed at Paris (1856) deprived it of the opportunity of showing its powers. The terms, so far as they imposed restrictions upon Russia, have not proved of any permanent value; and the idea which then prevailed that the Turks were likely to advance in the course of political and social improvements was without any corresponding basis in the region

of facts. It was quite right that the settlement of the unhappy regions commonly known as Turkey in Europe should be taken up as European rather than a Russian duty, but it is a duty the distractions or jealousies of European powers left unfulfilled, till Russia at last stepped forward to repair their omissions. The indirect results of the Crimean war are to be found in the removal of the pressure with which Russia had weighed on the nations of the Continent; and it may perhaps be fairly argued that the subsequent happy formation of a united Italy and a united Germany were in part rendered possible by the success of England and France under the walls of Sebastopol.

For some time after the Crimean war the business of legislation proceeded without any very great shocks. The suppression of a vast military rebellion in India (1857) was followed by the assumption of the direct authority over India by the crown. Though one or two attempts were made to effect an electoral reform, they were wrecked on the apathy or hostility of the nation, and there was general acquiescence in the course pursued by Lord Palmerston's ministry (1859), which, after one half-hearted attempt, refused to proceed further with the measure which it had proposed; whilst a succession of financial improvements were carried out by Mr. Gladstone, his chancellor of the exchequer. On Lord Palmerston's death (1865), the new Government, with Earl Russell at its head and Mr. Gladstone as the leader of the House of Commons, proposed a measure of reform, and resigned on failing to carry it (1866). Lord Derby succeeded, and Mr. Disraeli introduced an elaborate and complicated measure in the House of Commons. By this time the feeling of the working class had risen, and the necessary impulse was thus given to the House. The measure was modified and amplified, and became the law of the land (1867). The working class took its place by the side of the middle and upper class.

As in 1832, a new spirit was breathed in legislation. The first Parliament elected under the new system (1868) gave a majority against the opinions of the Conservative ministry. Mr. Gladstone became prime minister. The Irish Episcopal Church was disestablished, and the Irish land laws reformed. The ballot was applied to parliamentary elections, a new and improved system of elementary education was set on foot, and the practice of purchasing promotions in the army abolished. But no amount of zeal for improvement will make Englishmen hasty to forget the need of caution and moderation. The time came when the nation was no longer in a reforming mood. Interests of classes and trades were able to make themselves heard. Personal ill-feeling was roused by some of the members of the ministry, and a new Parliament showed a large majority in support of a Conservative ministry (1874).

Accordingly Mr. Gladstone at once resigned and Mr. Disraeli entered office as Prime Minister. He selected Lord Cairns as his Lord Chancellor, Earl Derby as Foreign Secretary, and the Marquis of Salisbury as Secretary of State for India, while Sir Stafford Northcote (afterward Lord Iddesleigh) had charge of the exchequer. For six years the reactionary ministry ruled, and did so with a high hand. During its term of power the Eastern question came once more to the front. Russia made war against Turkey, nominally to rescue the Christians of Bosnia and Herzegovina from the oppression of the Mussulman, actually with the view of acquiring Constantinople. The war-feeling in England was studiously fostered by the government and "jingoism" became rampant. Disraeli, in 1878, sent the British fleet to the Dardanelles and demanded a credit of £6,000,000 sterling. Cyprus was seized and a contingent of Indian troops was ordered to India.

The treaty of San Stefano was signed by Russia and Turkey on March 3, 1878, and in the following summer the Berlin treaty was made. The next troubles of the government began in South Africa, where Sir Bartle Frere forced an unnecessary and unrighteous war on the Zulu king, Cetewayo. This led also to the inglorious attack upon the liberties of the Boers of the Transvaal.

In dealing with the affairs of India the Tory government displayed the same tactics of bullying and aggrandizement. Early in his ministry Disraeli appealed to the Oriental imagination by proclaiming Queen Victoria as Kaiser-i-Hind, or Empress of India. His lieutenant, Lord Lytton, forced a war upon AFGHANISTAN (*q. v.*), and an expensive series of campaigns followed, the net result of which was the replacement of a puppet ruler on the Afghan throne. At home matters went from bad to worse. Agriculture was depressed, taxes increased, and trade almost brought to a standstill. Finally, in the spring of 1880, Lord Beaconsfield, as he had now become, dissolved Parliament. His great opponent made the fight of his life in the series of speeches which made up the Midlothian campaign, and returned to power with a majority of 150 in the House of Commons.

Mr. Gladstone's first care was to end the South African difficulty; his next to seek to amend the condition of affairs in Ireland. Unfortunately at this time (1881), the great Liberal leader had not risen to a full appreciation of the situation in that unfortunate country. His well-meant Land Act, which secured fixity of tenure, fair rents and free sale—the "three F's" demanded by the Irish leaders, was accompanied by a coercion bill, under which more than 700 persons were imprisoned without trial, in the winter of 1881–82. Under the head of IRELAND (*q. v.*) the details of subsequent legislation will be found. Suffice it here to say, that Chief Secretary Forster resigned, when it was decided to release the members of the Irish Parliamentary party from Kilmainham, and that on May 6, 1882, the cause of Irish liberty received an almost fatal blow, by the murder of Lord Frederick Cavendish, the newly-appointed Chief Secretary, and his subordinate, Mr. Burke.

In 1882 troubles began in Egypt, which led to the bombardment of Alexandria, and the suppression by a British force of a native rebellion led by ARABI PASHA, (*q. v.*) Growing out of this followed the wretched Soudan campaign, with all its disasters. A revival of trade and agriculture occurred during the administration of Mr. Gladstone. In 1885, the Home Rulers elected 84 of the 103 Irish members of Parliament. They held the balance of power and by a most ill-advised and suicidal course, united temporarily with the Tories and defeated the Liberal administration. At the succeeding general election, Mr. Gladstone failed to secure a sufficient working majority, but by a union of the English Liberal and Home Rule parties on an English agrarian measure the short-lived ministry of Lord Salisbury was overturned. Mr. Gladstone then introduced his great measure of Home Rule, which led to the revolt of the Liberal Unionists and their coalition with the Tories. The composite ministry then formed with the Marquis of Salisbury at its head, still (1890) holds office. Recent by-elections have shown a decided revolt by the great English constituencies against the coalition, and appearances all point to a repudiation of the old policy of repression at the next general election, which cannot be long delayed.

ENGLAND, THE CHURCH OF, is that portion of the universal church of Christ located in England, having for its ministers bishops, priests, and deacons, and being legally and historically continuous with the church of the most ancient times. The Church of England

claims to be a "true and apostolical church, teaching and maintaining the doctrine of the apostles." It acknowledges the supremacy of the crown, as that to which "the chief government of all estates of the realm, whether ecclesiastical or civil, in all causes doth appertain." It is established, or recognized by the law as the national church, and endowed—that is, the gifts of land or tithes made to it in ancient times are secured to it by the law. The Church of England has always had a national character. In mediæval Acts of Parliament it was called by the same name as at present, and was never identical with the Church of Rome, which was usually described as the court (*curia*) of Rome. In the sixteenth century, by a series of measures passed by the three estates of the realm, its vassalage to Rome was broken off, since which time the Roman court has maintained a hostile attitude toward it.

Christianity was planted in Britain at an early period after its first promulgation. There is a high probability that its origin in Britain was due to the intercourse of that country with the East, established in the first place by the Phœnicians, and continued by the colony planted by them at Marseilles. Glastonbury, according to William of Malmesbury, was the oldest church in Britain. That the church in Britain had, by the end of the third century, made a considerable number of converts, the records of the persecution under Diocletian afford evidence. Constantine, then governor of Britain, received the edict of persecution, and proceeded, though unwillingly, to execute it, and to "pull down the churches" of the Christians. It was in this persecution (303) that Alban, a Roman soldier, known as the British proto-martyr, suffered death at Verulam for sheltering a Christian priest.

The story which relates how Gregory, the Roman bishop, was moved to send the Benedictine monk, Augustine, and his forty companions on a mission to the Anglo-Saxons is one of the most familiar in church history (597). Bertha, the French-born queen of Kent, being a Christian, was the great support of the monks, but the relics of the old Christianity of the land were also an important help to them. Two Christian churches (at least) were in existence close to the walls of Canterbury. A large number, probably, of the Christianized Roman-Britons existed as a subject population. The traditions of Christianity survived. Thus the southern and central parts of Britain were rapidly reconverted to the faith. Meanwhile, concurrently with the work of these Roman missionaries, the monks of Iona—the monastery established in one of the western isles of Scotland by Columba, a disciple of St. Patrick—had done much in the conversion of the south of Scotland and north of England. In 668 Theodore, a Greek, was consecrated Archbishop of Canterbury by Pope Vitalian. The Saxon church at this period was one of the most flourishing in Europe. It sent out missionaries to Germany; it produced poets of considerable power, as Aldhelm; it furnished to Charlemagne the most learned and efficient of his instruments in Alcuin of York. But this happy state of things was rudely interfered with by the irruptions of the pagan Danes. These barbarous enemies seem to have directed their attacks specially and designedly against the monasteries and churches, either out of peculiar hatred to the Christian faith, or because they expected to find these religious houses the special receptacles of treasure.

After their decisive defeat by Athelstan (938), the Danes in England generally began to embrace Christianity, which prepared the way for its reception by the second great series of invading bodies toward the end of the century. Accordingly there is evidence that about this time the number of parish churches was

very considerable, there being in Lincolnshire alone upward of two hundred. The monastic system was in complete abeyance, and all those who desired to become clerks were attracted in this direction. It was the great work of Dunstan, a Glastonbury monk, who rose to be Archbishop of Canterbury (959), to undo as far as possible this wholesome state of things. He commenced a crusade against the married clergy, and in favor of celibacy and cenobitic life. He built and endowed about forty monasteries, and at most of the bishops' sees compelled the secular clergy, who had formed the chapter, to retire in favor of the regulars, who were then constituted the chapter of the cathedral church. This connection of the cathedrals with monasteries was a special peculiarity of the English Church. The doctrine of the Church of England at this period may be fairly gathered from the writings of the Abbot Ælfric, which were approved by Sigeric, Archbishop of Canterbury. Ælfric was the author of an English grammar and dictionary, and he wrote two volumes of sermons or homilies, which are in great part translations from the fathers of the Church. In these the Eucharist is explained, not as involving any material change in the elements, but as conferring the spiritual presence. At this time the clergy were obliged to possess a considerable number of books.

Medieval Period.—At the time of the Norman Conquest there were about 4,500 parish churches in England, besides numerous monasteries and the cathedral churches of the sees. The number of clergy is doubtful, but it is conjectured that the small number given in the survey (1,600) may be accounted for by the fact that when a church is mentioned the priest belonging to it is implied. By various laws and directions of the English kings, the clergy had acquired a right to the tithe of all moveable goods; and the gifts of the faithful had enriched the Church with lands to the amount of about three-tenths of the whole property of the country. The priest took rank with the thane; the bishop ranked with the ealdorman, and presided jointly with him over the shire-gemot. The correctional police of the whole population was in the hands of the Church. Civil and ecclesiastical causes were heard in the same courts, and synods adjudicated in cases of property when the rights of the Church were concerned. This powerful corporation paid only a doubtful and undefined allegiance to Rome, and was not at all in the condition of vassalage in which most of the Continental churches were. It was in order to gain this vassalage from the English Church that the Pope was induced to grant to Duke William the license which sanctioned his attack upon England. The Conquest thus assumed almost as much of an ecclesiastical as a secular character. Hence the hard measure meted out to Saxon bishops and abbots. Hence the completion of Dunstan's work in enforced clerical celibacy and the exaltation of monasticism. Hence the complete separation of the civil and ecclesiastical jurisdictions, and the exceptional immunities given to churchmen. The Conqueror was crowned, not only by the Archbishop of York, but also by two Roman cardinals as legates of the Pope. These emissaries joined in a council with the Norman-English bishops (1070), authorizing, on the part of the Pope, the deposition of the English primate and other bishops and the spoliation of the monasteries, and effecting the complete subjection of the English Church to Rome. The establishing of the papal sovereignty over the English Church, and the settling of the Romish system in England, was intrusted to Lanfranc, a Lombard by birth, and lately Abbot of Caen, in Normandy. This very able man becoming Archbishop of Canterbury, contrived to overpower the rival claims of Thomas, Arch-

bishop of York, and, aided by the Pope's authority, to rule with absolute sway over the English clergy. A vast increase of vigor was everywhere soon discernible in the Church of England. The Norman prelates, skilled in architecture, erected those grand cathedrals which still in many places remain to do honor to their taste and munificence. The sees were generally transferred from the small places, in which they had been located by the English, to towns which had grown into greater importance and population. All places of trust and dignity in the Church were soon in the hands of foreigners. King William soon showed signs of resistance to the claims of that *imperium in imperio* which his policy had created. He refused fealty to the Pope on the ground that none of his predecessors had paid it. He claimed for himself the right of deciding between the rival claims of Popes, and that no canons should be promulgated by the clergy without his consent—the very claim which, after nearly five centuries of contention, the clergy themselves admitted in the time of Henry VIII. The sagacity of the Conqueror must soon have discovered that he had introduced into the land an influence of necessity antagonistic and dangerous to the kingly authority. The name of Anselm, the successor of Lanfranc as primate, is famous in English Church history as having boldly maintained a contest, during two reigns, for the privileges of the church, not only against the king, but also against the bishops and clergy, who were all ready to yield to the royal claims. The issue of this contest (1107) was that the crown was obliged to abandon its ancient right of investing the bishop in the jurisdiction of his see by the gift of the ring and crozier, accepting in lieu of that merely his homage for his temporalities, that henceforth the church was to be free to hold synods and enforce discipline, and that appeals were to lie to Rome. To Anselm thus must be allowed the credit (if it be a credit) of having emancipated the Church from feudalism to the state and transferred its feudalism to Rome.

During this century the Roman Church was at the height of its power and influence, the celibacy of the clergy, strenuously pressed by Rome, was becoming the rule rather than the exception, and a great revival of monasticism had given birth to divers orders in which the lax discipline of the old Benedictines was replaced by an ascetic strictness. Of these the most famous was that of the Cistercians or white monks, which was introduced into England in 1128, and which soon numbered thirty houses in England, some of which were conspicuous for their magnificence and beauty. The settlement of the Cistercians in England not only gave an immense impetus to monasticism, but it introduced into the Church of the land a principle most disastrous in its after effects to the discipline and well-being of the Church. They were only amenable to the rule of abbots of their own order. This exemption was naturally destructive of all discipline, and it was a privilege so greatly coveted by houses of other orders that they stopped at no deceit or forgery of documents in order to obtain it. St. Albans was the first great Benedictine abbey that obtained this privilege. The military orders and their affiliated houses enjoyed it. The privilege of being tried only in Church courts, and being amenable only to Church censures, was claimed for all connected with the Church. To obtain this right, laymen took some degree of minor orders, or entered into the service of some ecclesiastic. As all such could plead "benefit of clergy," and, in fact, obtain a practical immunity from law, the greatest abuses prevailed. To abate this scandal was the great work of King Henry II., the most able of the early sovereigns of England, and the founder of that judicial system which has borne such good

fruit. To uphold it was the work of Thomas Becket, Archbishop of Canterbury. By the Constitutions sworn to at Clarendon (1164), a sort of compromise was made. Clerks accused of crimes were obliged to plead in the courts of common law, but, on proving their clerkship, were to be proceeded against in courts Christian, under the surveillance of the lay authority. Should they plead guilty, they were to be dealt with by the lay courts. The same Constitutions enacted that there should be an appeal from the archbishop to the king, which should be final, thus cutting off the appeal to Rome. Bishops were to be elected by the clergy, but subject to the approval of the king. The power of excommunication and interdict was also limited, and the king had the revenues of all vacant bishoprics given to him. These Constitutions, which appear so favorable to the cause of the crown, did not, in fact, settle the dispute. The archbishop at once repudiated them. The Pope declared them void, and the issue of the struggle was, in the event, in favor of the claims of the clergy. In the miserable reign of John, a vigorous Pope claimed and obtained the right of nominating to the primacy and sees of England, without any regard to the king or the National Church. The king, at length completely prostrate at the feet of the Pope, made a shameful cession of his kingdom, and received it back as a fief of the Church. The Pope, having achieved the right to dispose of English bishoprics, now claimed the right of disposing of English benefices, which were granted in great numbers to Italians and other foreigners, who never troubled themselves to visit the church assigned to them, but merely received the revenue through an agent. The degradation and disgrace of the Church of England reached its extreme point during the long and inglorious reign of Henry III., when the first symptoms of reaction began to manifest themselves.

The extreme vigor and fearlessness of his character, and the high reputation he enjoyed, enabled Grosseteste, Bishop of Lincoln, first to break down the claims for exemption from episcopal control set up by the monastic bodies, then to bring under his control the chapter of his cathedral church, and finally to refuse to admit a nominee of the Pope to a stall in Lincoln. For this last act of independence he was excommunicated, but he utterly disregarded the sentence, declared that in acting as he had done the Pope was no better than antichrist, and encouraged the English to assert the nationality of their church and to disregard the claims of Rome. At the synod of Merton, held in 1255, the claims of the church to a special and dominant jurisdiction were pressed to their highest point. The vigorous administration of Edward I. introduced various checks to the growing power of the clergy. Parliament had now become a reality, and was able to contend with and check the church synods, which about the same time were reinforced in strength by the admission of representative proctors from the clergy. Had not the necessities of the house of Lancaster obliged its princes to court the church, and the confusions of the Wars of the Roses supervened, it is probable that the teaching of Wickliffe would have inaugurated in England as complete a revolt from Rome as that witnessed in the sixteenth century. The immense power and wealth enjoyed by the Church of England during the Middle Ages, and its complete freedom for self-regulation, did not preserve it from great shortcomings and corruptions. In 1250, Bishop Grosseteste, before the council of Lyons, spoke of the clergy of that day in terms which are absolutely appalling. In the fifteenth century the letter of Pope Innocent to Cardinal Morton describes the regulars in England in language almost as strong as that employed afterward by Bale and Foxe. It may, however, not un-

fairly be alleged that these general charges are of far too sweeping a character. To the student who looks a little deeper, there are many evidences of simple and earnest devotion discernible in the mediæval church. The establishment of the mendicant orders in the thirteenth century produced at first a great revival of religion in the church. Many of the chief towns had been utterly neglected by the clergy; and the country villages were mostly dependent on the chance ministrations of a monk of some neighboring monastery, which had absorbed the tithes of the parish under pretense of supplying its spiritual needs. The Franciscans, obliged by their rule to tend the sick and suffering, ministered among a population scourged by leprosy and decimated by epidemics; the Dominicans, or preachers, brought into use a more attractive and homely style of sermon, and conveyed instruction to many utterly dark places. Yet, the corruption of the friars by worldly influences was very speedy, and when in the fourteenth century Robert Langland and John Wickliffe wrote, it was specially against the friars that their attacks were directed. The great work of Wickliffe was to raise a protest against Rome, to oppose the prevailing superstitions on the Eucharist, and to give to his countrymen a vernacular version of the Scriptures. The clergy had absolutely abdicated the preaching function and the pastoral care, and contented themselves with a meager circle of routine duties. The church seemed to be threatened with an absolute collapse, unless some renovating power could be brought to bear upon it.

Reformed Period.—In this state of weakness and corruption, the accession to the throne of England of a young and vigorous sovereign (1509) gave an impulse toward improvement in both church and state. The tastes of Henry VIII. were decidedly ecclesiastical. He had been well educated, and was very fairly learned. He had chosen for his chief minister a churchman who had raised himself by ability from a low origin, and who entertained the highest views of the prerogatives of learning, and the value of education, while he was hampered by no superstitious reverence for effete institutions, nor prepared to condemn and punish as heresy every departure from commonly received opinions. The conjuncture seemed favorable for such a reformation as was desired by Erasmus, Thomas More, and John Colet, who were then living much together, and endeavoring by lectures and writings to bring about some resurrection of learning and intellectual life from the death-like trance in which they were lying. The Saxon monk Luther threw down the gauntlet before the Pope, and proclaimed internecine war. This scattered the ranks of the educational reformers, turning some of them into fierce persecutors, and placing even the relentless satirist Erasmus, the determined foe of the monkish superstitions, on the side of those whom he had so violently assailed. In that year both Archbishop Warham and Bishop Longland write to Cardinal Wolsey, urgently calling upon him to take some steps for the suppressing of the growing Lutheranism of Oxford. Wolsey, thus constrained to act, went through the pageant of a public burning, at St. Paul's, of all the Lutheran books which could be collected, some time in August, 1521. In 1523 he distinctly refused to send a commission to Cambridge to drive out Lutheranism. In his splendid structure and grand conception of Cardinal College, which was fast growing toward completion in Oxford, he nominated as fellows a band of Cambridge men who were known to be pronounced Lutherans. This great man seems to have believed in the power of truth to defend itself, and to have been thoroughly averse to coercive punishments for heresy. Meanwhile the unfortunate divorce case proved the ruin

of Cardinal Wolsey; and Sir T. More, succeeding him as chancellor, used his power, with the full concurrence of the king and the bishops, to bring many of those who held with Luther to the stake. But while the authorities were thus embittered against reformation, there had been steadily growing since the commencement of the reign a feeling of bitter dislike and exasperation of the laymen against the clergy. That which most tended to exasperate the laity against the clergy was, the state of the church courts, and the vexatious disciplinary proceedings to which, on the information of any disreputable person, the laity were constantly subjected. Nothing was done to remedy the crying grievance, and the laity determined to take their cause into their own hands. There were thus two elements at work in the country at this period likely to produce important changes in the ecclesiastical system, viz., the rapid development in England of the religious opinions of the foreign reformers, and the growing feeling of bitterness entertained by the laity against the clergy.

To these was added, before the meeting of the famous parliament of November, 1529, another very important factor, in the disappointed and angry temper of the king. Henry, who had imagined that his will must needs be law, had found himself thwarted in the matter of his divorce by the Pope and the Roman curia; and the abortive termination of the trial at the legatine court of Blackfriars had roused him to fury. His anger was directed first of all against Wolsey, while he already contemplated taking vengeance on the Pope by the extreme legal enactments. In the first session of the parliament of 1529, three measures affecting the revenues and fees of the clergy were passed. The clergy saw themselves seriously threatened, and when, after Wolsey's fall, the whole of the clerical body was declared by the judges to have incurred the penalties of the præmunire statute, the convocations, acting for their brethren, were ready to purchase immunity by the sacrifice of very large sums. But the king, not satisfied with this, demanded more from the clergy than a mere money payment. He demanded of them acceptance of his claim to supremacy over the church, which was in fact a distinct renunciation of their allegiance to Rome. After much disputing as to the terms, this was at last agreed to by the two convocations, but with the saving clause—*As far as is permitted by the law of Christ*. When the Act of Parliament which embodied this acknowledgment of the clergy came afterward to be drawn, this saving clause was omitted. From the moment when the clergy agreed to accept the royal supremacy, the rupture with Rome went on apace, and was embodied and carried out in one statute after another. This complete surrender of the whole code of church law into the king's hands was to a certain extent evaded by the clergy, but substantially they agreed to the king's requirements (May 16, 1532). Henceforth no convocations could be summoned but by the king's writ, no church law could be made but such as the king approved, and the old canons were to be subjected to review. Meantime the parliament went rapidly forward in the work of breaking off the fetters of Rome, and securing the independence of the national church.

Cromwell had been secretary to the cardinal, and had distinguished himself by advocating his cause after his fall. For some time past he had been the principal adviser of Henry in all the measures taken to free the land from Rome, and the most remarkable use which the king had made of the ecclesiastical supremacy conferred upon him by the clergy, and the parliament was to appoint Cromwell his vicar-general, with full powers to exercise the undefined authority belonging to the royal supremacy over all churchmen and churches. An Act confirm-

ing the surrender of the monasteries was passed (1539), and the king thus became possessed of the whole monastic wealth of England, both in movables and lands. Small pensions were assigned to the monks and nuns thus forcibly driven into secular life, and the remainder of the sum, amounting in modern value to not less than £38,000,000, was expended in various ways. While the suppression of the monasteries was in progress, many acts were done tending to establish the new state of things, and to complete the revolt of the Church of England from the dominion of Rome. The king had pressed the acknowledgment of his supremacy, and had sacrificed, in doing this, many victims, and among them two of the most eminent men of England, Bishop Fisher and Sir Thomas More (1535). In 1536 the first authoritative statement of reformed doctrine was made. Ten articles were drawn up by the king and accepted by the convocation of the clergy, declaring that the whole Christian faith is to be found in the Bible, and disparaging the worship of images, the invocation of saints, and the belief in purgatory. That which tended most of all to the rapid spread of reformed doctrine was the publication of the Bible in English. In 1530 the king had promised that this should be conceded. In 1534 the convocation, at the instance of Archbishop Cranmer, had reminded him of his promise, and petitioned for its fulfillment. But there was no immediate prospect of this coming about. Consequently Cromwell, whose political life was staked on the progress of the Reformation, employed Miles Coverdale, in concert with Tynedale in Germany to make and print a translation of the Scriptures from the Latin and German versions of them. This was published in England (October, 1539), and though not formally approved, was tolerated by the king. The English Bible being thus fairly launched in the country, the attempts made by the reactionary party to check the advance of reformed opinions all proved abortive. The king vacillated strangely between one influence and the other. In 1539 he was himself the author of a law intended to uphold the old faith with extreme severity. Under this the punishment of death was decreed against all who refused to acknowledge the doctrine of transubstantiation, and very rigorous penalties against five other proscribed opinions. The fall of Cromwell soon followed, and the reactionary party seemed for a moment to have triumphed. But the influence of Archbishop Cranmer with the king could not be overthrown, and further progress in reformation was soon to be discerned. The law of Six Articles was modified and allowed to lie dormant; the service-books were reviewed and amended by convocation; the litany was published in English; the king himself put out an English primer, in which the strongest statements are made as to the desirability of having prayers and services in English. King Henry died in 1547. By his will he nominated sixteen councilors to administer affairs during the minority of his son Edward VI., and in this council the reforming or Protestant element soon had complete sway.

In 1548 a service in English was published to be appended to the Latin service of the mass, and provision was made in this for the reception in both kinds by the laity. In 1549, an English prayer-book, carefully drawn up from the old service-books of a body of divines, accepted by convocation and Parliament, was given to the Church, and the use of it was made compulsory by an Act of Uniformity. Images were soon removed from churches, altars taken away to be replaced by tables, and Archbishop Cranmer, zealously bent on the work of reformation, earnestly invited all the most distinguished foreign Reformers to visit England, that, if possible, the lovers of reformation might agree to

confession of faith, to be opposed to the confession of the Romish Church then being formulated and settled at the Council of Trent. Many of the foreigners thus invited did in fact visit England, and their influence was very considerable. With their help a body of forty-two articles was drawn up by the English divines, which, having been approved by convocation and sanctioned by the king, the clergy were called upon to subscribe. The extreme rapaciousness of the chief men of the state at this period led to a seizure of church property, which greatly impoverished and kept back the growth of the Church in after years. The inappropriate tithes, which in very many cases had been acquired by monasteries, went, at their suppression, into lay hands, and no suitable provision was made for the remuneration of the clergyman of the benefice. Hence the clergy for a long period were of a low social grade, and very few of them competent through learning to become preachers. When, on the death of Edward (1553), Queen Mary succeeded him, the majority of the clergy accepted without hesitation the reestablishment of the old superstitions. There was, however, a certain number, estimated variously from 1,500 to 3,000, who were incapacitated from doing this. These were the clergy who had taken advantage of the enabling law, passed in the last reign, to contract matrimony. These clergy were now everywhere expelled from their benefices, and some of them were harshly treated. About 800 of the laity and clergy who favored reforming views, foreseeing the danger to be apprehended from the queen, escaped at her accession to various towns on the continent; the remainder of like views in England soon found their way into prison, until it should be determined what policy to adopt toward them. The temper of the prince whom Mary had married, as well as her own, were both favorable to persecution, and it was determined in the council to proceed to the extremest measures sanctioned by the law against the so-called heretics. A commission of bishops was opened (January, 1555) for the trial of heretics. On February 4th was burned for alleged heresy, at Smithfield, Mr. Rogers, prebendary of St. Pauls; on February 8th, at Coventry, Mr. Saunders, rector of All Hallows, Bread St.; on February 9th, Hooper, Bishop of Gloucester, at Gloucester, and on the same day Doctor Taylor, rector of Hadleigh, at that place; on March 30th, Farrar, Bishop of St. David's, Carmarthen. On October 16th Bishops Ridley and Latimer were burned at Oxford, and finally, at the same place, on March 22, 1556, was burned Archbishop Cranmer, for twenty-three years the primate of England. In the year 1555 were burned seventy-five; in 1556, eighty-three; in 1557, seventy-seven; in 1558, fifty-one—making a total of 286 in four years. On the death of Queen Mary (1558), a new queen who favored the reformation succeeded; the whole of the clergy of England, with the exception of 189, accepted the change. The queen was a lover of ceremonial. The prayer-book was reviewed, but the only alterations made in it tended rather in the direction of increased ceremonial. The disciples of the foreign reformers, who soon obtained the name of Puritans, could not for a time believe that the ceremonial would be really enforced against them with vigor. But the queen was determined to compel the bishops to exercise discipline. When the Puritans discovered this, some of them formally separated from the church (1566); many more deliberately set themselves to devise plans for evading the laws and still keeping their benefices. The ministers who acted thus were strongly supported by a numerous party in the House of Commons, and only the untiring vigor and courage and the unflinching popularity of the queen saved the Church from disruption.

Yet all this time the chief supporters of the Puritans were among her own favorites and ministers, Lord Leicester and secretary Walsingham being the most conspicuous. The number of the dissenters increased, while a complete conformity was produced in the church. By a law passed in 1593, which, making Puritanism an offense against the statute law, put the punishment of dissenters into the hands of the common law judges, the resistance to the church was well-nigh overcome. The chief of the Puritans now quitted England. The last ten years of Elizabeth's life were comparatively free from religious contentions, and the church grew and flourished. In 1563 a review of the forty-two articles agreed upon under Edward VI. had issued in the number being reduced to thirty-nine, the introduction of some new matter, and the exclusion of some previously adopted. The amended articles were accepted by the convocation of Canterbury and representatives of that of York, and, being ratified by the queen, were ordered to be subscribed by the whole of the clergy. An Act of Parliament making this compulsory was passed in 1571. During the reign of Elizabeth the theology of the church of England in its reformed state acquired form and substance. These higher views were readily accepted by the new sovereign James I., who, himself a theological writer, and thoroughly alienated from the Presbyterians by the rough treatment he had received at their hands, was ready to accord high authority to the church as he demanded it for the throne. At the commencement of the reign of James, the Puritans entertained great expectations of obtaining changes favorable to their views. A petition, signed by nearly a thousand ministers who held with them, had been presented to the king, and a conference was arranged to be held at Hampton Court (January, 1604) to consider the points in dispute. Very small changes were the issue of this conference. Severe measures followed, Bancroft, the new primate (December, 1604), demanded not only the act of subscription to the formularies, but a declaration from the clergy that they made it *ex animo*. Through this many were deprived. Under Abbot, who succeeded him (1610), Calvinistic opinions were much favored in the church, and the king, who at that time appeared to hold these views, sent four English divines to represent him at the synod of Dort (1618). But toward the latter part of the reign Arminian opinions began to be freely advocated by the divines, and the parliament, which was strongly opposed to these opinions and to the milder treatment of Romanists with which they were accompanied, began to make fierce personal assaults on the chief maintainers of them. The accession of Charles, who was more strongly imbued with the impressions so distasteful to Parliament than even his father, while it encouraged the court divines to bolder flights, made the temper of Parliament more hostile to both them and the king. The angry dissolution of the parliament in 1629 was followed by an organized attempt on the part of the church rulers to preach up absolutist doctrines and the divine right of kings. The king's trusted adviser, Laud, was at the same time the autocratic ruler of the church, having, through the courts of High Commission and Star Chamber, an absolute power over both clergy and laity. Laud aspired not only to exact conformity, but to regulate the opinions and teaching of the whole body of clergy after the court pattern.

The unwise policy of continuing the convocation after the dissolution of Parliament, in order that it might grant the king a benevolence, added fuel to the fire, and when, in November, 1640, the Long Parliament met, a most violent attack was at once made on Archbishop Laud and the clergy generally. Laud and two other

bishops were committed to the Tower, awaiting articles of impeachment. Soon the King and Parliament were at open war, and the severest measures were directed against the clergy, who were mostly loyal to the king. They issued a directory for public worship, the use of which was enforced by law, while that of the Common Prayer was forbidden under severe penalties. The taking of the Scotch Solemn League and Covenant was enforced on all persons, and those clergy who refused it were at once deprived. By these means a large proportion of the Episcopal clergy of England were ejected during the times of Presbyterian ascendancy. Their archbishop had been beheaded as a traitor (1645), and many of their leading divines were in prison. Under Cromwell and the Independents the condition of the clergy did not improve. In 1655 a very severe law forbade the clergy to use the Common Prayer in private houses, or to act as tutors or schoolmasters. They were thus reduced to the greatest distress and misery. They resisted the demands upon them for concessions on the Puritanical side made at the Savoy Conference, and in the review of the prayer-book by convocation which followed, the changes made were by no means such as we were likely to render it more acceptable to the objectors. Yet to this prayer-book a severe Act of Parliament required an immediate and unconditional assent and consent, as the condition of ministering in the church, requiring at the same time that all those who had not received episcopal orders should seek them, and that a declaration against the Covenant and a promise of non-resistance should be made. The effect of these requirements was to eject from ministering in the church about 2,000 ministers (1662). The ejected were followed up and persecuted by various harsh measures, making it illegal for them to hold conventicles—the Parliament acting, as it seemed, from vindictive feeling, the king desiring to drive the non-conformists to despair, that they might seek from him the exercise of a dispensing power which he assumed to possess. His real object was to legalize Romanism, and in fact to carry out precisely the same policy which his brother afterward adopted. At the Revolution, by far the greater number of clergy elected to transfer their allegiance to William, but nine bishops and over 400 clergy refused the oaths. These seceders formed a separate church; they were, however, weakened by intestine quarrels, and, never obtaining any general support, they disappeared toward the end of the century. It was mainly on this ground that in 1717 the government suspended the action of convocation, which did not meet again for business until recent times.

During the eighteenth century a general remissness and negligence prevailed throughout the Church of England. Many of the clergy were Arians in their views; the sacredness of their office was but little recognized; the services in many churches were negligent and infrequent. The first reaction came from a band of earnest young clergymen and students at Oxford, of whom the two Wesleys and Whitfield are the best known. These men became traveling preachers, endeavoring to carry to every part of the land a stirring religious appeal. Their success was marvelous. Whitfield became the leader of the Calvinistic Methodists, and the two Wesleys of the larger body, which favored Arminian views. The Methodist movement had operated very strongly on the English clergy, and toward the end of the century a considerable section of them, distinguished for their zeal and earnestness, were known as the Evangelical School. By their exertions the Church Missionary Society, designed to spread Christianity in Africa and the East, was founded; Bible and tract societies, Sunday schools, and other agencies were established. In the

nineteenth century the growth of the Church of England has been remarkable. The school of Oxford Tract writers, which began to attract notice about 1838, gave prominence to the sacramental system and corporate powers of the Church, and enlisted a new class of energies in its service. The zeal for building and restoring church fabrics has been so strong, that within a period of thirty years a sum of £30,000,000 is known to have been contributed for this purpose. At the same time the Church has aided materially in furnishing school-houses for all the villages in England, and in numberless other works of utility and charity. Its colonial and missionary episcopate now amounts to sixty; while the daughter church in America has nearly the same number of prelates. The extension of the home episcopate is also proceeding, but at a slower rate. In England her clergy amount to about 20,000.

II. *Formularies and Doctrines.*—The formularies of the English Church are translations in part from Latin and Greek rituals, which have been used fourteen or fifteen hundred years in the Christian church, and in part from the service book called the *Consultation* of Hermann, Archbishop of Cologne, published in 1543. This was the work of Bucer and Melancthon, but was grounded on a book previously published by Luther.

Morning and Evening Services.—The services prescribed for these hours, after being shortened, had been brought together in a book called the Breviary (1073-1086). From the Breviary the English form was translated, the morning service being an abridgement of those prescribed for nocturns, lauds and matins, the evening of those prescribed for vespers and compline.

Several occasional prayers and thanksgivings have been added for use in the morning and evening services at the different reviews of the prayer-book. The *litany* provided to be used, in addition to the morning and evening service, on Sundays, Wednesdays, and Fridays, was a translation of a very ancient form of service, which had been said processionally in the church ever since the time of St. Chrysostom. The English litany was translated by Cranmer, at the desire of Henry VIII., in 1544. Cranmer cut out such of the old invocations as did not accord with his reforming views, and inserted several portions from the litany issued in 1543, by Hermann, Archbishop of Cologne. The form now used in the English Church has been slightly altered from that put forth in 1544. *Communion Service.*—The service to which by far the greatest importance was attached in the ancient Church was that for holy communion, or the mass, as it came to be called from the last word of the Latin form. This is properly designated the *liturgy*. The ancient Gallican liturgy had been adopted by the early British Church. Augustine, by permission of Pope Gregory, grafted some particulars of it on the Roman use which he introduced, and thus created an English liturgy, which, however, was not uniform throughout the land, but varied in different districts. This English liturgy was revised and reformed by Osmund, Bishop of Salisbury, in 1087. At the review of the prayer-book after the accession of Elizabeth, some changes were again made, and also at the last review in 1661. The English communion office as it stands at present is taken principally from the ancient liturgies, but also to a very considerable extent from reformed sources. The *baptismal offices* were compiled partly from the ancient forms, but chiefly from the offices in Archbishop Hermann's *Consultation*. The office for adult baptism was added in 1661. *The Catechism.*—This is altogether an office of the Reformation, no such form being found in the ancient service-books. *Service for Confirmation.*—This service was brought into its present form in 1661, being then separated from

the Catechism, with the previous explanatory rubric turned into a preface. It is due, partly to the ancient Sarum office and partly to the *Consultation* of Archbishop Hermann. *Order of Matrimony*.—This service is taken almost entirely from the ancient office in the Sarum manual, as also is the office for the *Visitation of the Sick*. In 1552, when the practice of reserving the elements was forbidden, the service for the *Communion of the Sick* was added. The order for *Burial of the Dead* is a substitution for the mediæval offices of commendation, burial, mass for the dead, and office for the dead. It has been much changed at the several revisions of the prayer-book. The service for the *Churching of Women* is mainly derived from the mediæval office. The *Communion Service* is made up of the address composed by the Reformers, and the prayers and suffrages anciently used in the Church on the first day of Lent. The *Forms of Prayer to be used at Sea* were composed by Bishop Sanderson in 1601. The *Ordinal* did not form a part of the prayer-book of 1549, but was composed under the authority of a special Act of Parliament, which empowered six bishops and six other divines to draw up a fitting ordinal. It was reviewed on the formation of the second prayer-book (1552), and considerably altered, and it was then appointed to form part of the prayer-book. The prayers are almost entirely new compositions, but the general arrangement of the services and the form and manner of conferring holy orders is the same that has been used for many centuries.

The *Doctrines* of the English Church may be gathered to a great extent from the prayer-book, inasmuch as it was the custom of the Reformers, who compiled that book, to introduce into all the services some words of exhortation and teaching as to the nature of the service. The *Articles*, now in number thirty-nine, were originally forty-two. They were drawn up in the years 1551 and 1552, under the superintendence of Archbishop Cranmer and Bishop Ridley. These prelates made drafts of the articles proposed, and sent them to various divines of eminence, both English and foreign, inviting their suggestions thereon. The foundation of these drafts was a paper of articles agreed upon between Archbishop Cranmer and certain Lutheran divines who were in England in 1538, with a view of inducing Henry VIII. to adopt the Augsburg Confession. These were drawn as nearly as possible in the terms of the Augsburg Confession, and hence the resemblance between the articles of the Church of England and those of Augsburg. They were reviewed by the two houses of the convocation of Canterbury and some members of the northern convocation in 1563, and having been reduced to thirty-nine, and some additions and alterations made in them, were ratified by the queen, and subscribed first by the convocations, and then by all the clergy. In 1571 an Act of Parliament was passed making subscription to the articles necessary for all clergy as the condition of holding benefices. Together with the homilies and prayer-book, they form a complete exposition of the tenets of the English Church on all the main points both of doctrine and of discipline.

III. *Constitutional Status*.—The Church of England, or the *Spirituality*, is one of the estates of the realm, and has an integral part in all legislation. It was on the ground of this constitutional position of the spirituality that the famous protest was made, in 1641, as to the proceedings in the House of Lords in the absence of the bishops. This is pronounced by Mr. Hallam to be in accordance with the plainest principles of law. The Church is accepted by the state as the religious body in England, which is the legitimate possessor of all property set apart and devoted to religious uses,

except the rights of some other religious body be specially expressed. It is the possessor of the ancient religious fabrics of the land and of the cemeteries attached to them. Its rights are carefully guarded by law, the incumbent of each parish being a corporation sole with certain duties and privileges. This position of the Church toward the state is called its *Establishment*. It has arisen not from any definite Act of Parliament or the state, but from the gradual interpenetration of the state by the Church, and from their having mutually grown up together.

IV. *Law*.—The Church of England is governed by a system of jurisprudence made up of three elements—the Common Law, the Canon Law, the Statute Law. The first consists of customs, precedents, and judicial records; the second of all canons passed or accepted by English synods, which are not "contrariant to the laws, statutes, and customs of the realm," and which, if passed after the Act of Submission of the Clergy, 1534, have received the sanction of the crown; the third of Acts of Parliament relating to the church. Of these there is now a very large number.

ENGLISH BIBLE. The history of the vernacular Bible of the English race resolves itself into two distinctly marked periods—the one being that of Manuscript Bibles, which were direct translations from the Latin Vulgate, the other that of Printed Bibles, which were, more or less completely, translations from the original Hebrew and Greek of the Old and New Testaments.

As far back as the English language can be followed, there are traces of the work of English translators of the Scriptures.

It is singular that while France, Spain, and Italy each possessed vernacular Bibles before Henry VIII. began his reign, and Germany had seventeen editions of the Scriptures printed and widely circulated in the German language before Luther was known, yet no English printer attempted to put the familiar English Bible into type. No part of the Bible was printed in English before 1526, no complete Bible before 1535, and none in England before 1538.

The first of all printed English Bibles is a small folio volume measuring 11¼ by 8 inches, and bears the title — *Biblia*. A second edition in folio, "newly oversene and corrected," was printed by Nicolson, with English type, in 1537; and also, in the same year, a third edition in quarto. On the title-page of the latter were added the words, "set forth with the Kynge's moost gracious licence."

The words at first printed on the title-page, and subsequently canceled, had been doubtless placed there by mistake. In his dedication to the king, Coverdale says, "I have with a clear conscience purely and faithfully translated this out of five sundry interpreters, having only the manifest truth of the Scriptures before mine eyes." These "five interpreters" would naturally be Bibles in Hebrew, Greek, Latin, German, and English—the English being that with which Coverdale must long have been familiar, the Wickliffite version, together with the recent translations of Tyndale.

It should be added that Coverdale's Bible was the first in which the non-canonical books were collected out of the body of the Old Testament and placed by themselves at the end of it under a separate title. Coverdale entitled them *The Volume of the Book called Hagiographa*, but this was changed to *Apocrypha* in the Great Bible of 1549.

The large sale of the New Testaments of Tyndale, and the success of Coverdale's Bible, showed the London booksellers that a new and profitable branch of business was opened out to them, and they soon began

to avail themselves of its advantages. Richard Grafton and Edward Whitchurch, afterward the king's printers, were the first in the field, bringing out a fine and full-sized folio in 1537.

In the year 1530, Henry VIII. issued a commission of inquiry respecting the expediency and necessity of having "in the English tongue both the New Testament and the Old," the commission consisting of Sir Thomas More, the two archbishops, and the bishop of London, together with seventeen other "discreet and well-learned personages" taken from the two universities and "other parts of his realm," whose names are recorded, together "with many more learned men of the said universities in great number assembled them then and there together."

This commission, which included Hugh and William Latimer among its members, reported against the expediency of setting forth a vernacular translation until there was a more settled state of religious opinion, but states that the king "intended to provide that the Holy Scripture shall be, by great, learned, and Catholic persons, translated into the English tongue if it shall then seem to His Grace convenient to be." The convocation of Canterbury refreshed the royal memory on the subject by petitioning the king on December 19, 1534, "that His Majesty would vouchsafe to decree, that the Scriptures should be translated into the vulgar tongue by some honest and learned men, to be nominated by the king, and to be delivered to the people according to their learning." A letter from Bishop Gardiner to Cromwell is preserved among the state papers, dated June 10, 1535, in which the former writes that he had translated St. Luke and St. John for his portion of the work, and that he had expended great labor upon them; and of the rest, with the exception of Stokesley, Bishop of London, "when the day came," says Morrice, "every man sent to Lambeth their parts corrected." Some further steps of revision and preparation for the press would no doubt be taken, and the subject was again before convocation in 1536.

For reasons not now known, it was determined that this authorized version should be printed by Francis Regnault, the Paris printer, who provided most of the service-books that were used in England. At the request of Henry VIII., "noster carissimus frater," a license was granted to Regnault for this purpose by Francis, the French King, while Coverdale and Grafton were sent over in 1537, the one as a learned editor, the other as a practical printer, to superintend the work as it passed through the press. Portions of the printed sheets were sent home by Bonner, who was then ambassador at the court of Paris, as ambassador's baggage, and were thus conveyed out of France free from any difficulties with the French authorities; but when the printing was far advanced, on December 17, 1538, its further progress was interdicted by the inquisitor-general, and orders were given to seize the whole of the impression. Coverdale and Grafton left Paris quickly, leaving a great number of finished sheets, which were condemned to be burned in the Place Maubert; but, through the connivance of the officer appointed to see this done, the whole of them were sold to a haberdasher as waste paper, and "four great dry vats" full of them sent over to England. As the license to print them had been given at the special request of Henry VIII., it is probable that the escape of the men and the books was facilitated by the civil authorities to prevent any unpleasantness with the English king. A short time afterward the types, printing press, and workmen followed the printed sheets, and the volume which had been begun in Paris, in 1537, was completed in London, the colophon stating that it was "Fynished in Apryll,

Anno M.CCCC.XXXIX. It is a splendid folio "Bible of the largest volume," and was distinguished from its predecessors by the name of "The Great Bible." The title-page describes it as "The Byble in Englyshe, that is to saye, the content of all the Holy Scripture, bothe of the Olde and Newe Testament, truly translated after the veryte of the Hebreue and Greke texts by yedylygent studye of dyverse excellent learned men, expert in the forsayde tongues. Prynted by Rycharde Grafton and Edward Whitchurch, 1539." This was the first of seven editions of this noble Bible which issued from the press during the years 1539-41—the second of them, that of 1540, having the important addition "This is the Byble apoynted to the vse of the churches" on the title-page. Seventy years afterward it assumed the form ever since known as the "Authorized Version," but its Psalter is still embedded, without any alteration, in the Book of Common Prayer.

The "Great Bible" was, however, a dignitary among books, its size and its price (about £6 of modern money), making it comparatively inaccessible as a home volume for private use. The demand for the vernacular Scriptures, which the supply of them had caused, was at the same time so enormous that, before the end of Edward VI.'s reign, twenty-six editions of folio and quarto Bibles, and about double that number of editions of New Testaments, had been printed. This demand for household Bibles was effectually and unexpectedly met by one on the production of which the English refugees were engaged at Geneva during the last year of Queen Mary's reign and the beginning of the reign of Queen Elizabeth, and which became the household Bible of the English middle classes for at least two generations.

The popularity of this Bible was so great that about 200 editions of it in various sizes, from folio downward, were published.

Soon after the accession of Queen Elizabeth, when the demand for Bibles was again pressing upon the printers, Archbishop Parker organized a revision of the Great Bible of 1539 by "able bishops and other learned men." The work was undertaken by the archbishop himself, eleven other bishops, and four deans and prebendaries, in 1563, the plan of distributing it being precisely the same as adopted that by Archbishop Cranmer.

Much labor was expended on this revision, but the printing was completed, and the volume, a large folio, was ready for publication on October 5, 1568. Several editions of it were afterward published, but it may be doubted whether it was ever cordially received. The Great Bible of 1539 was used in many churches, and the Geneva Bible was in almost every house; and although the eightieth Canon of 1603 enjoins that the Bishops' Bible shall be the only one used in churches, it was never reprinted after 1606. A quarto edition was brought out in 1569, and the New Testament was several times printed separately.

The English Bible, which is now recognized as the "Authorized Version," wherever the English language is spoken, is a revision of the Bishops' Bible, begun in 1604 and published in 1611. It arose out of the conference between the High Church and Low Church parties, which was held by James I. at Hampton Court in 1604, being originally proposed by Doctor Reynolds, president of Corpus Christi College, Oxford, the leader and spokesman of the Low Church party, and subsequently on the committee which revised the translation of the Prophets. No real opposition was offered to the proposal, and the king cleverly sketched out on the moment a plan to be adopted. He "wished that some special pains should be taken in that behalf, for one uniform translation, and

this to be done by the best learned in both universities; after them to be revised by the bishops and the chief learned of the church; from them to be presented to the Privy Council; and lastly, to be ratified by his royal authority. And so this whole church to be bound upon it, and none other." He also particularly desired that no notes should be added by way of comment in the margin. The appointment of the revisers was a work of much responsibility and labor, and five months elapsed before they were selected, and their respective portions assigned to them; but the list of those who began the work, and who, with some few changes, in consequence of deaths, brought it to a happy conclusion, shows how large an amount of scholarship was enlisted. It includes Bishop Andrewes, who was familiar with Hebrew, Chaldee, Syriac, Greek, Latin, and ten other languages; Bishop Overall; Doctor Saravia; Bedwell, the greatest Arabic scholar of Europe; Sir Henry Savile, the most learned layman of his time; and, to say nothing of others well known to later generations, nine, who were then or afterward, professors of Hebrew or Greek at Oxford or Cambridge. It is observable also, that they were chosen without reference to party, at least as many of the Puritan clergy as of the opposite party being placed on the committees, and among them Reynolds and Chaderton, two of the four who had represented those clergy in the Hampton Court conference.

When this large body of scholars were set down to their work, a set of rules was drawn up for their guidance, which has happily come down to modern times among the very few records that remain of this great undertaking.

The preface is as follows: It "hath cost the workmen, as light as it seemeth, twice seven times seventy-two days and more: matters of such weight and consequence are to be speeded with maturity: for in a business of moment a man feareth not the blame of convenient slackness. Neither did we think much to consult the translators or commentators, Chaldee, Hebrew, Syrian, Greek, or Latin, no nor the Spanish, French, Italian, or Dutch. Neither did we disdain to revise that which we have done, and to bring back to the anvil that which we had hammered; but having and using such great helps as were needful, and fearing no reproach for slowness, nor coveting praise for expedition, we have at length, through the good hand of the Lord upon us, brought the work to that pass you see."

One principal reason why the English Bible in this last form gives such general satisfaction to the English ear is that it speaks in a language of its own which is conventionally received as a Biblical tongue—a language which is thoroughly English, and which is yet separated by its archaic form from the colloquial English of every-day use on the one hand, and from the literary English of most other books on the other. This archaic language is not, however, that of Elizabethan and Jacobean times, as is sometimes alleged. Its genealogy is to be traced up in a direct line through every state of Biblical revision to the Latin Vulgate, and the common English ancestor of every such revision is the Wicliffe Bible of the fourteenth century.

The question of revision of the Authorized Version has been frequently discussed, but it is only in very recent times that anything has been done which appears to call for particular mention here. In February, 1870, the convocation of Canterbury, at the instigation of the Bishop of Winchester, Dr. Samuel Wilberforce, appointed a committee to consider the subject, which three months afterward reported in the following terms:—

"1. That it is desirable that a revision of the Authorized Version of the Holy Scriptures be under-

taken. 2. That the revision be so conducted as to comprise both marginal renderings, and such emendations as it may be found necessary to insert in the text of the Authorized Version. 3. That in the above resolutions we do not contemplate any new translation of the Bible, or any alteration of the language, except where, in the judgment of the most competent scholars such change is necessary. 4. That in such necessary changes the style of the language employed in the existing version be closely followed. 5. That it is desirable that convocation should nominate a body of its own members to undertake the work of revision, who shall be at liberty to invite coöperation of any eminent for scholarship, to whatever nation or religious body they may belong."

The report was adopted, and two companies were formed for the revision of the Authorized Version of the Old and New Testaments respectively, consisting of members of convocation and other distinguished Biblical scholars.

Their work has been completed, and the revised version of the Bible placed on the market, and while the arrangement is somewhat different from that of the Authorized Version, its effect has not been such as to cause a change of view on any doctrinal point by the masses of the Church.

ENGLISH LANGUAGE. In its widest sense, the name is now conveniently used to comprehend the language of the English people from their settlement in Britain to the present day, the various stages through which it has passed being distinguished as Old, Middle, and New or Modern English. Old English, or Anglo-Saxon, and Modern English are, for all practical ends, distinct languages—as much so, for example, as Latin and Spanish. No amount of familiarity with Modern English, including its local dialects, would enable the student to read Anglo-Saxon, three-fourths of the vocabulary of which have perished and been reconstructed within 800 years; nor would a knowledge even of these lost words give him the power, since the grammatical system, alike in accidence and syntax, would be entirely strange to him.

The English language is not "native" to Britain, that is, it was not found here at the dawn of history, but was introduced by foreign immigrants at a date many centuries later. At the Roman Conquest of the islands, the languages spoken by the natives belonged all (so far as is known) to the Celtic branch of the Aryan family, modern forms of which still survive in Wales, Ireland, the Scottish Highlands, Isle of Man, and Brittany. The long occupation of South Britain by the Romans (43–409 A.D.)—a period, it must not be forgotten, equal to that from the close of the Middle Ages to the present day, or to the whole duration of Modern English—familiarized the provincial inhabitants with Latin, which was probably the ordinary speech of the towns. Gildas, writing nearly a century and a half after the renunciation of Honorius, addressed the British princes in that language; and the linguistic history of Britain might have been not different from that of Gaul, Spain, and the other provinces of the Western Empire, where a rustic Latin giving birth to a neo-Latin language finally superseded the native one except in remote and mountainous districts, when the course of events was entirely changed by the Teutonic conquests of the fifth and sixth centuries.

The Angles, Saxons, and their allies belonged to the Teutonic or Gothic branch of the Aryan family, represented in modern times not only by the English and their colonies, but by the populations of Germany, Holland, Denmark, and the Scandinavian peninsula, and found at the dawn of history located between and

about the estuaries and lower courses of the Rhine and the Weser, and the adjacent coasts and isles. For more than 1,000 years the Teutonic or Gothic stock has been divided into the three branches of the Low German, High German, and Scandinavian, of which the former represents the original stock, the two others being offshoots to the south and north respectively.

As it was amongst the *Angel-cynn* or *Engle* of Northumbria that literary culture first flourished, and an *Angle* or *Englisc* dialect was the first to be used for vernacular literature, *Englisc* came eventually to be a general name for all forms of the vernacular as opposed to Latin, etc.; and even when the West-Saxon of Alfred, became in its turn the literary or classical form of speech, it was still called *Englisc* or *Englisch*. The origin of the name Anglo-Saxon is disputed, some maintaining very positively that it means a union of Angles and Saxons, others (with better foundation) that it meant *Englisc Saxons*, or Saxons of England, as distinguished from Saxons of the Continent.

As already hinted, the English language, in the wide sense, presents three main stages of development—Old, Middle, and Modern—distinguished by their inflexional characteristics. The latter can be best summarized in the words of Mr. Henry Sweet, in his *History of English Sounds*. "Old English is the period of *full* inflexions (*name, gifan, caru*), Middle English of *levelled* inflexions (*naame, given, caare*), and Modern English of *lost* inflexions (*name, give, carenām, nam, gib, car*).

The Old English was a homogeneous language, having very few foreign elements in it, and forming its compounds and derivatives entirely from its own resources. A few Latin appellatives learned from the Romans in the German wars had been adopted into the common Teutonic tongue, and are found in English as in the allied dialects.

The earliest specimens we have of English, date to the end of the seventh century, and belong to the Anglian or northern dialect, which, under the political eminence of the early Northumbrian kings from Edwin to Egfrid, aided perhaps by the learning of the scholars of Iona, first attained to literary distinction. But our chief acquaintance with Old English is in its West-Saxon form, the earliest literary remains of which date to the ninth century, when under the political supremacy of Wessex and the scholarship of King Alfred it became the literary language of the English nation, the classical "Anglo-Saxon."

The Old English period is usually considered as terminating about the year 1100—that is, with the death of the generation who saw the Norman Conquest. The Conquest established in England a foreign court, a foreign aristocracy, and a foreign hierarchy. The French language, in its Norman dialect, became the only polite medium of intercourse. The native tongue, despised not only as unknown but as the language of a subject race, was left to the use of boors and serfs, and except in a few stray cases ceased to be written at all. The natural results followed. When the educated generation that saw the arrival of the Norman died out, the language, ceasing to be read and written, lost all its literary words. The words of ordinary life, whose preservation is independent of books, lived on as vigorously as ever, but the literary terms, those that related to science, art, and higher culture, the bold artistic compounds, the figurative terms of poetry, were speedily forgotten. The practical vocabulary shrank to a fraction of its former extent. And when, generations later, English began to be used for general literature, the only terms at hand to express ideas above those of every day life were to be found in the French of the privileged

classes, of whom alone art, science, law, and theology had been for generations the inheritance. Hence each successive literary effort of the reviving English tongue shows a larger adoption of French words to supply the place of the forgotten native ones, till by the days of Chaucer they constituted a formidable part of the vocabulary. Nor was it for the time being only that the French words affected the English vocabulary. The Norman French words introduced by the Conquest, as well as the Parisian French words which followed under the early Plantagenets, were, the bulk of them, Latin words which had lived on among the people of Gaul, and, modified in the mouths of succeeding generations, had reached forms more or less remote from their originals. In being now adopted as English, they supplied precedents in accordance with which other Latin words without limit might be converted into English ones, whenever required; and long before the Renaissance of classical learning, though in much greater numbers after that epoch, these precedents were eagerly followed.

While the eventual though distant result of the Norman Conquest was thus a large reconstruction of the English vocabulary, the grammar of the language was not directly affected by it. While the English used their own words, they could not forget their own way of using them, the inflexions and constructions by which alone the words expressed ideas—in other words, their grammar; when one by one French words were introduced into the sentence they became English by the very act of admission, and were at once subjected to all the duties and liabilities of English words in the same position.

But indirectly the grammar was affected very quickly. In languages in the inflected or synthetic stage the terminations must be pronounced with marked distinctness, as these contain the correlation of ideas; it is all-important to hear whether a word is *bonus* or *bonis* or *bonas* or *bonos*. This implies a measured and careful pronunciation, against which the effort for ease and rapidity of utterance is continually struggling, while indolence and carelessness continually compromise it. There has been an increasing tendency in English, as in other languages, to give each word one main accent, at or near the beginning, and to suffer the concluding syllables to fall into obscurity. We are familiar with the cockney *winder, sofer, holler, Sarer, Sander*, for window, sofa, holla, Sarah, Sunday, the various final vowels sinking into an obscure neutral one, conventionally spelt *er*.

The MIDDLE ENGLISH stage was preëminently the *Dialectal* period of the language. It was not till after the middle of the fourteenth century that English obtained official recognition as a language. For three centuries, therefore, there was no standard form of speech which claimed any preëminence over the others. The writers of each district wrote in the dialect familiar to them; and between extreme forms the difference was so great as to amount to unintelligibility; works written for southern Englishmen had to be translated for the benefit of the north:—

"In sotherin Inglis was it drawin,
And turnid ic haue it till ur awin
Language of ye northin lede
That can na nothir Inglis rede."

Cursor Mundi.

The first great work is the *Ormulum*, or metrical Scripture paraphrase of Orm or Ormin, written about 1200, it is generally assumed, in Lincolnshire or Notts. The dialect has a decided smack of the North, and shows for the first time in English literature a large per-

centage of Scan linavian words, derived from the Danish settlers, who, in adopting English, had preserved a vast number of their ancestral forms of speech, which were in time to pass into the common language, of which they now constitute some of the most familiar words. *Blunt, ball, die, dwell, ill, kid, raise, same, thrive, wand, wing*, are words from this source, which appear first in the work of Orm, of which the following lines may be quoted:—

þe Judewisshē folkess boc
hemm seȝȝde, þatt hemm birrde
Twa bukkes samenn to þe preost
att kirke-dure bringenn.

The author of the *Ormulum* was a phonetist, and employed a special spelling of his own to represent not only the quality but the quantities of vowels and consonants—a circumstance which gives his work a peculiar value to the investigator.

Thirty years after the *Ormulum*, the east midland rhymed *Story of Genesis and Exodus* shows us the dialect in a more southern form, with the vowels of modern English. In 1258 was issued the celebrated English proclamation of Henry III., or rather of Simon de Montfort in his name, which, as the only public recognition of the native tongue between William the Conqueror and Edward III., has been spoken of as the first specimen of English.

The change of the language during the second period of transition, as well as the extent of dialectal difference, is quaintly expressed a generation later by Caxton, who in the prologue to one of the last of his works, his translation of Virgil's *Æneid* (1490), speaks of the difficulty he had in pleasing all readers:

"I doubted that it sholde not please some gentylmen whiche late blamed me, sayeng, y in my translacions I had ouer curyous termes, whiche coude not be vnderstande of comyn peple, and desired me to vse olde and homely termes in my translacions. And fayn wolde I satisfy euery man; and so to doo, toke an olde boke and redde therin; and certaynly the englysshe was so rude and brood that I coude not wele vnderstande it. And certaynly it was wroten in suche wyse that it was more lyke to dutche than englysshe; I coude not reduce ne brynge it to be vnderstonden."

In the productions of Caxton's press, we see the passage from Middle or Modern English completed, and the year 1485, which witnessed the establishment of the Tudor dynasty, may be conveniently put as that which closed the Middle English transition, and introduced Modern English. Both in the completion of this result, and in its comparative permanence, the printing press had an important share. By its exclusive patronage of the midland speech, it raised it still higher above the sister dialects, and secured its abiding victory. As books were multiplied and found their way into every corner of the land, and the art of reading became a more common acquirement, the man of Northumberland or of Somersetshire had forced upon his attention the book-English in which alone these were printed. This became in turn the model for his own writings, and by and by, if he made any pretensions to education, of his own speech.

MODERN ENGLISH thus dates from Caxton. The language had at length reached the all but inflexionless state which it now presents.

The commencement of the Tudor period was contemporaneous with the Renaissance in art and literature, and the dawn of modern discoveries in geography and science. The revival of the study of the classical writers of Greece and Rome, and the translation of their works

into the vernacular, led to the introduction of an immense number of new words derived from these languages, either to express new ideas and objects, or to indicate new distinctions in or groupings of old ideas. Often also it seemed as if scholars were so pervaded with the form as well as the spirit of the old, that it came more natural to them to express themselves in words borrowed from the old than in their native tongue, and thus words of Latin origin were introduced even when English already possessed perfectly good equivalents. It has already been stated, the French words of Norman and Angevin introduction, being principally Latin words in an altered form, when used as English supplied models whereby other Latin words could be converted into English ones, and it is after these models that the Latin words introduced during and since the sixteenth century have been fashioned.

While every writer was thus introducing new words according to his idea of their being needed, it naturally happened that a large number were not accepted by contemporaries or posterity; a portentous list might be formed of these minjages of the sixteenth and seventeenth centuries, which either never became current coin, or circulated only as it were for a moment.

The voyages of English navigators in the latter part of the sixteenth century also introduced a considerable number of Spanish words, and American words in Spanish forms, of which *potato, tobacco, cargo, armadillo, alligator, galleon*, may serve as examples.

The date of 1611, which coincides with the end of Shakespeare's literary work and the appearance of the Authorized Version of the Bible (a compilation from the various sixteenth century versions), may be taken as marking the close of Tudor English. The language was thenceforth Modern in structure, style, and expression, although the spelling did not settle down to present usage till about the Restoration.

The steps by which English, from being the language of a few thousand invaders along the eastern and southern seaboard of Britain, has been diffused by conquest and colonization over its present area form a subject too large for the limits of this article. It need only be remarked that within the confines of Britain itself the process is not yet complete. Representatives of earlier languages survive in Wales and the Scottish Highlands; though in neither case can the substitution of English be remote. In Ireland, where English was introduced by conquest much later, Irish is still spoken in patches all over the country; though English is understood, and probably spoken after a fashion, everywhere. At opposite extremities of Britain the Cornish of Cornwall and the Norse dialects of Orkney and Shetland died out very gradually in the course of last century. The Manx, or Celtic of Man, is even now in the last stage of dissolution; and in the Channel Isles the Norman *patois* of Jersey and Guernsey have largely yielded to English within the last thirty years.

English Literature, Anglo-Saxon Period, 505-1066.—The early history of literature in England might lend some countenance to the theory that the development of a nation's literature is, at bottom, but a chapter of its religious history. While the religion of our fathers was in the main a rude awe-struck worship of the forces of nature, literature either had no existence for them, or was in a state not less elementary, consisting of a few songs and oracles, and nothing more. With the advent of the religion of Christ—the only faith which at once recognizes the original dignity of human nature and repairs its fall—came an intellectual as well as a spiritual awakening to the Teutonic nations—for into such the original tribes or clans of the invaders had now grown—that were planted in the old

provinces of Roman Britain. Fortified by gospel precept for the present life, and thrilled with the hope of the life to come, the Saxon mind, released from disquietude, felt free to range discursively through such regions of human knowledge as its teachers opened before it, and the Saxon heart was fain to pour out many a rude but vigorous song. Pope Gregory himself, who, according to the old phraseology, sent baptism to the English, is said indeed to have spoken disparagingly of human learning. But the missionaries could not fail to bring them from Rome the intellectual culture of the countries bordering on the Mediterranean, so far as it had survived the fall of the Western empire and the interruption of the barbarians. The Roman alphabet, paper or parchment, and pen and ink, drove out the Northern runes, the beechen tablet, and the scratching implement. The necessity of the preservation, and at least partial translation, of the Scriptures, the varied exigencies of the Catholic ritual, the demand for so much knowledge of astronomy as would enable the clergy to fix beforehand the date of Easter, all favored, or rather compelled, the promotion of learning and education up to a certain point, and led to continual discussion and interchange of ideas. Gratefully and eagerly our forefathers drew in the warm and genial breath which came to them from the intenser life and higher enlightenment of the south.

Toward the end of the eighth century the descents of the piratical heathens known by the general name of Danes, but probably born for the most part in Scandinavian countries lying to the north of Denmark, began to plague the English coasts. These destroying savages resembled the modern Turks in possessing fine military qualities, and above all indomitable courage; they were also like the Turks in this respect that wherever they set their foot, progress of every kind was arrested, culture was blasted, and the hopes of civilization died away. Fortunately they were not, like the Turks, absolutely deaf to the voice of the Christian missionary, though their natural brutishness made them difficult to convert and prone to relapse. With incredible pains, and a charity that nothing could disgust or deter, the Church gradually won over these Scandinavian Calibans to the Christian creed; and when once converted their immense natural energy and tenacity were turned into right and beneficial channels, at least in great measure. But for 230 years—from the sack of Lindisfarne to the accession of Canute—the so-called Danes were the curse of England, destroying monasteries and the schools maintained by them, burning churches and private houses, making life and property everywhere insecure, and depriving the land of that tranquility without which literature and art are impossible. After a long prevalence of this state of things, society in Wessex having been, one would think, almost reduced to its first elements, Alfred arose, and after obtaining some successes in battle over the Danes, leading to a treaty and the conversion of part of them to Christianity, obtained a period of peace for his harassed and dejected countrymen. History tells us how well he wrought to build up in every way the fallen edifice of West-Saxon society. Among his labors not the least meritorious was his translation of Beda's *Historia Ecclesiastica*, Pope Gregory's work *De Cura Pastoralis*, the famous treatise of Boethius *De Consolatione*, and the *Universal History* of Orosius. He also founded several schools, and made a beginning in the work of restoring monasteries. Yet in spite of his generous efforts, the evils caused by the Danes could not be repaired.

At the time when Beda died (735), the Angles of Northumbria were beginning to lay aside the use of arms, and zealously to frequent the monastery schools;

as among their princes, as among those of Wessex, some were found to exchange a crown for a cowl and a throne for a cell. But a reaction set in; perhaps some had tried asceticism who had no vocation for it; and after the middle of the century Northumbrian history is darkened by the frequent record of dissension among the members of the royal house, civil war and assassination. On this state of things came the ravages of the Northmen, and made it incurable. Lindisfarne, with all its treasures and collections, was destroyed by them in 793. This is but a sample of the havoc wrought by those barbarians; yet for a long time many monasteries escaped; and, in particular that of York was a center of learning far on into the ninth century, probably till the disastrous battle occurred before York, described in the Saxon Chronicle under 867. At this monastery Alcuin was educated, and when grown up he had charge of its school and library. In 780 he was sent on a mission to Rome; on his return, at Parma, he fell in with the Emperor Charlemagne, who incited him to settle at Aix-la-Chapelle, at that time the chief imperial residence, to teach his children, and aid in the organization of education throughout his dominions. Having obtained the permission of his superiors at York, Alcuin complied with the request; and from that time to his death, in 804, resided, with little intermission, either at the imperial court or at Tours. Alcuin's letters, though the good man was of a somewhat dry and pedantic turn, contain much matter of interest.

After the death of Alcuin, the confusion in Northumbria became ever worse and worse, for the Danes forced their way into the land, and many years passed before the two nations could agree to live on friendly terms together side by side. But for the *Durham Gospels*, a version in the Angle dialect of the four gospels, and a few similar remains, the north of England presents a dead blank to the historian of literature from Alcuin to Simeon of Durham, a period of more than 300 years. In the south, as we have seen, the resistance to the intrusion was more successful, and the intellectual atmosphere far less dark. The works of Ælfric, who died Archbishop of Canterbury in 1006, are chiefly interesting because they show the growing importance of the native language. Ælfric's *Homilies* are in Anglo-Saxon; his *Colloquy* is a conversation on common things, in Latin and Anglo-Saxon, between a master and his scholar.

Anglo-Norman Period, 1066-1215.—The eleventh century is remarkably barren in great names and memories which captivate the imagination; it was, however, an advance upon the tenth, which Baronius has described as the central and worst period of intellectual darkness. In England, for about 150 years after the Conquest, there was no unity of intellectual life; in political life, however the iron hand of the Conqueror compelled an external uniformity, by the universal exaction of homage to himself. The strength of the Norman monarchy, the absence of religious differences, and after a time, the loss of Normandy, were causes working powerfully in aid of the conciliation and interfusion of the different elements of the population. But at first it was as if three separate nations were encamped confusedly on British soil—the Normans, the English, and the Welsh. The clergy, as a fourth power, of all nationalities or of none, became—by its use of Latin as a common tongue, by preaching a common faith and teaching a common philosophy, and as representing the equality and charity which are among the essential features of Christianity—an ever-present mediating influence tending to break down the partitions between the camps.

In less than two centuries after the Northmen under

Rollo had settled in Normandy, they had not only exchanged their Teutonic speech for the language of France, but made — with French as a medium of expression — remarkable literary progress. In this progress the Normans settled in England participated to the full. It is probable that the Turolodus, who, availing himself of earlier Frankish lays and chronicles, composed toward the end of the eleventh century the noble heroic poem called the *Chanson de Roland*, was an abbot of Peterborough, son of the clerk of the same name who was the Conqueror's preceptor. From the reign of Henry I., though the names of several writers are known, little of importance has come down to us.

Thus far we have considered the Anglo-Norman poets chiefly as chroniclers; we have now to regard them as romance writers. It is true that in their hands history slides into romance, and *vice versa*; thus the *Brut d'Angleterre* may be regarded as historical in so far as it treats of the series of British kings, mythical as that series itself may be, but as a romance in most of that portion of it which is devoted to the adventures of Arthur. We here enter upon a wide field; the stores of Arthurian, Carolingian, and general chivalrous romance suggest themselves to the mind; a thousand interesting inquiries present themselves; but the limits traced for us prescribe a treatment little more than *allusive*; that is, French romance can only be described in virtue of the stimulating and suggestive effect which it had on English writers. This effect was produced in a measure by great poems like the *Alexandreis* (1200), by the original French romances on Charlemagne and his peers, and by that on the third crusade and the prowess of King Richard. The romances relating to Arthur, doubtless on account of the extent to which they really sprang from British soil, were those which most profoundly stirred the English mind. It is not difficult to trace the steps by which the legend grew. Gildas, writing in the sixth century, knows of Arthur's victory at Mount Badon, but does not name him, and though Geoffrey has so much to tell us of Arthur, he is silent about the Round Table. That splendid feature of the legend first appears in the *Brut* of Wace, and was probably derived from Breton poems or traditions to which Geoffrey had not access. Other branches of Arthurian romance, especially those relating to Tristan and Perceval, became about this time widely popular. A cycle of romance, which till now had breathed only of revenge, slaughter, race-hatreds, unlawful love, magic, and witchcraft, becomes transformed in a few years into a series of mystical legends, symbolizing and teaching one of the profoundest dogmas of the Catholic creed. This strange effect was produced by the infusion into the Arthur legend of the conception of the *Saint Graal*, the holy vessel used by Christ at the Last Supper, and containing drops of his blood, which Joseph of Arimathea was said to have brought into Britain. This transformation seems to have been executed by Walter Map, the remarkable Welshman whose genius decisively colors the intellectual history of the last forty years of the twelfth century. Map is said to have written a Latin history of the Graal, which is now extant. English versions, more or less literal, of these romances, among which may be named the works of Lancelich and Sir Thomas Malory, and the alliterative poem of *Joseph of Arimathea*, attest the great and enduring popularity of the Graal form of Arthurian legend.

The labors of the clergy and monks during all this period were applied with unwearied diligence and signal success to the building up of a Latin literature. In the list of chroniclers occurs the well-known names of Florence of Worcester, William of Malmesbury, and Henry

of Huntingdon. Many histories of particular monasteries were written, and have recently, to a large extent, been made accessible, through the labors of editors employed under the superintendence of the Master of the Rolls. St. Anselm, Archbishop of Canterbury in the reigns of William II. and Henry I., employed his great metaphysical and dialectical powers in the endeavor to establish a harmony between reason and faith. The scholastic philosophy, technically speaking, began with Peter Lombard and his *Book of Sentences* (1151); from the University of Paris it spread all over Europe; and in the next period it will be seen that several of the most eminent schoolmen were natives of the British Isles. The works of the Englishman, John of Salisbury, who studied and resided much at Paris about the middle of the century, throw a curious light on the tenets and mutual relations of the scholastic sects.

Commencements of English Literature, 1215-1350. — The course of events in this period, as bearing upon literature, may be thus described: The fortunate loss of Normandy in 1204 brought the ruling classes and the commonalty of England closer together, put an end to the transmarine nationality and domicile of the former, and gave a common political interest, in relation to the outside world, to all the dwellers on English soil. Thus two out of the four nations, which we spoke of in the last section as encamped side by side on British territory, were soon in a fair way of being fused into one. The third — the Welsh — losing in 1292 its political independence, lost also with it the pretension, and almost the desire, to maintain a separate literature. Still, however, in spite of common interests, and the ever-growing multiplicity of the ties of blood between the two, Norman and Englishman continued each to speak his own language. Layamon, about 1205, and Ormin, about fifteen or twenty years later, write for the English-speaking majority, which understands little or no French; from French their language is just as alien as the Flemish of the present day. The first great step toward that blending of tongues which was to crown the blending of families already commenced was taken when the English writers and translators of the thirteenth century began to admit freely into their writings an unlimited number of those generally intelligible French words of which the stock was, through closer intercourse between the governors and the governed, perpetually on the increase. Of this practice Robert of Gloucester and Robert Manning are conspicuous examples. In spite of this approximation, we shall find that strenuous efforts were made, by or on behalf of the upper classes, to retain French as the common literary language, and keep English in the position of a popular dialect, useful for the common purposes of life, but not vivified by genius or polished by contact with refined lips. Of this effort Robert de Grosseteste, Bishop of Lincoln, may be considered the center. It broke down, however, against the force of circumstances. First, as fast as good French books were produced, Englishmen translated them, and the translations probably found ten readers for one who could enjoy the originals; secondly, the wars between England and France, which broke out in 1338, and in which the English-speaking archers — the back-bone of the stout yeomanry, which then covered the land — won the chief share of glory, must have greatly tended to discredit, among Englishmen of all classes, the tongue of their enemies. The popular rage for speaking French which had existed before 1348 was then changed. By the middle of the fourteenth century the industry of the translators had produced a great body of English compositions, colored everywhere by French thought, and studded with French words; the preaching of the friars had, for a hundred years, been working in the same di-

rection, *i.e.*, to break down the partition, not only between the races, but between the tongues; the war suddenly gave to English an enormous advantage over its rival in respect of popularity.

Philosophy now for the first time, in the person of Roger Bacon, devotes herself systematically to the study of nature and its laws. This great man, the chief part of whose long life was spent in the Franciscan friary at Oxford, died in 1292. But the subsidiary aids which physical science requires were wanting to him, and in that rude age could only be obtained with extreme difficulty. Mathematical instruments were terribly expensive; tables were scarcely to be had; books were both rare and costly. That he discovered so much as he did—chiefly in chemistry and optics—is a thing to wonder at. Vague reports of these discoveries circulating among the ignorant populace caused Roger Bacon to be deemed a conjuror or necromancer; the chap-books and low comedies of the reign of Elizabeth represent him exclusively in this light.

Early English Literature, 1350-1477.—The period at which we have arrived comprises about 120 years, ending at the date of the introduction of printing into England. During all this time the scholastic philosophy reigned undisturbed at the universities. Wickliffe, so far as his methods of argument and reliance on logic were concerned, was as much a schoolman as the friars who contended with him. Wickliffe's first attacks upon the established order were directed, not again at doctrine, but against encroachments of the church upon the state, against the holding of temporal "lordship" or authority by ecclesiastical persons, and against the claim asserted by the Pope to receive "Peter's pence," or an equivalent, from the English nation.

All the writings hitherto described were in Latin. But Wickliffe, resolved to carry the conflict into a more spacious arena, and to appeal to popular sympathy by writing in the language of the people. He preached and circulated many English sermons; he organized his body of itinerant preachers; assisted by his followers he put into circulation an incredible number of English tracts, directed against abuses in discipline, and what he deemed errors in doctrine.

But the sunny south produced in that age other poets beside the French, poets the force and melody of whose writings caused the glory of Morris and Machault to wax pale in comparison. Chaucer must have become acquainted with Boccaccio at an early age, for in the *Assembly of Foules*, written when he was only twenty-four or twenty-five, several stanzas are translated from the description, in the *Theside* of the Italian poet, of the garden of Queen Nature. With Petrarch he is believed on reasonable grounds to have become acquainted during his visit to Italy in 1373; the charming allusion to the "laureat poet," in the prologue to the "Clerk's Tale," is familiar to every reader. Dante, whom he calls "the grete poete of Itaille," supplied him with a vision in the "House of Fame," and with the materials of one of the tragedies in the "Monke's Tale," the story of Count Ugolino. But it was to Boccaccio that his obligations were the largest; from his *Filosofo* he translated, though with many additions and alterations, his *Troilus and Cryseyde*; the "Knight's Tale" is in the main a translation of the *Theside*, and two or three other *Canterbury Tales* are more or less close renderings of stories in the *Decameron*. Italian was then in a far more advanced stage, one better suited for literary purposes, than English; and it must be set down as undoubtedly due to his Italian studies that in Chaucer's hands our language—which seventy years before had appeared as a barbarous dialect in the mouth of Robert of Gloucester, and, even as used by Langland, Chaucer's

contemporary, is harsh and crabbed—was proved to be rich in sweetness and harmony, no less than in force.

After all, had Chaucer done no more than has been already indicated, though he would have deserved credit for polishing and regularizing the language, and would have left models of style for later ages to imitate, he would not have earned the praise of a great and immortal poet. In this category, however, he is definitively placed, in virtue of the original portions of the *Canterbury Tales*. Not only is the Prologue the work of a great literary artist, drawing from nature with an incomparable force, sureness, and freedom of hand, but the whole series of linking passages, besides many of the tales, which, though the materials are old, are transfigured by the treatment they receive, attest the presence of a masterly intellect and an unfailing imagination. He "saw life thoroughly and saw it whole;" his somewhat keen and caustic temper opened his eyes to the tricks of hypocrites and pretenders, which his manly straightforwardness made him expose without ceremony; on the other hand, the noble and really superior cast of his character placed him in full sympathy with those who in heroic self-denial were following under his eyes the counsels of perfection. Over against the portraits of Monk, Friar, and Pardoner in the Prologue, may be set the legend of Sainte Cecilia, the "Man of Law's Tale," and the exquisite opening stanzas of the "Priores's Tale." In that peculiar combination of great force of handling with grace and versatility, on which the availability and effect of poetic genius so largely depend, Chaucer may be placed in a trio with Shakespeare and Pope, and no fourth name in English literature can, from this point of view, be raised to their level.

Coming to speak of Gower after Chaucer, we descend, as we now clearly see, through an enormous interval; but this distance was not so apparent to their contemporaries and immediate successors.

Dan Lydgate, the monk of Bury, was a loyal admirer and follower of Chaucer; and if the practice of poetry could make a perfect poet, he should stand, in virtue of his innumerable compositions, among those of the highest rank. But the language—already rich and various, but unsettled in form and deficient in precedents—escaped out of his control.

Perhaps some crude theory of poetic inspiration misled him, as it misleads poets of our own day, whose roughness and obscurity yield as unsatisfactory results as Lydgate's roughness and mediocrity. The materials for his more important productions were chiefly French and Latin works of his own day, or not much earlier in date.

Yet it would not be easy to overrate the effect produced by the invention of printing on the development of literature, and the diffusion of those complex influences and arrangements which we call civilization. Language and its devices exist but to promote the rapid interchange of ideas between man and man; and the device of printing is a further long step in the same march, and a part of the same endeavor. By means of it, books reached in five years countries which before they had not reached in twenty, and readers were multiplied a hundred fold. Through it the speculations of scholars and the theories of philosophers could be quickly brought before the whole body of learned men and philosophers in Europe; hence arose counter speculations and adverse theories, which again obtained publicity with the same rapidity as the first, and to this process there was no limit. Poetry, as being one of the more spontaneous growths of the human mind—the child of passion and imagination, not of controversy—owed comparatively little to the new invention. The literary annals of Spain furnish us with the names of

more than a hundred poets who adorned the long reign of John II. of Castille, ere printing came into being; while for a century after the discovery, the poetic art was in a feeble and inert condition, both in Spain and England. On the other hand, historical studies of all kinds, since they flourish in proportion to the facilities given of collecting facts and materials—and printing greatly enhanced these facilities—received a sudden and highly beneficial impulse.

The first book certainly known to have been printed in England is the *Dicts and Sayings of the Philosophers*, a translation from the French; this was printed by Caxton in 1477, within the precincts of the abbey of Westminster. For fifteen years more Caxton labored diligently in his vocation, and at his death, in 1492, left the art of printing firmly established in England. An examination of the list of works which he printed shows what branches of literature were most in esteem in the English society of his day. Professor Craik enumerates forty-five works, which comprise all Caxton's more important typographical performances. Of these, thirteen are religious and devotional, twelve are works of romance and chivalry or other prose fiction, seven are historical or legal works, five are English versions of classical authors, five handbooks or didactic works, and three editions of English poets.

Period of the Renaissance and the Reformation, 1477-1579.—A new interest seized upon all the more lively intelligences—that of recovering what, having passed into oblivion, might still be recoverable of the works of the ancients, as well as of appropriating thoroughly what was already known. In Latin literature the chief works had long been known; Virgil, Ovid, and even many of the works of Cicero, had for ages been the delight of scholars and the food of poets. But even in respect of these, the greater publicity which the multiplication of copies by the printing-press gave to them led to innumerable questions being stirred, which till then had lain comparatively dormant.

But it was Greek learning, because of the comparative newness of the field, and the inconceivable value of the treasures which it hid, that awakened the most intense and passionate interest. The story of the revival of Greek studies in Italy, toward the end of the fourteenth century, is as exciting to a sensitive intellect as any romance. Gradually the contagion of the learned frenzy which created a hundred academies and literary societies in the Italian cities spread itself across the Alps. England was but very little, if at all, behind France. William Latimer, a priest and an Oxford man, is continually mentioned in the letters of Erasmus and his contemporaries as a scholar of vast erudition, and especially conversant with Greek.

It is a lamentable fact that after this brilliant opening of the study of the humanities at Oxford, the dawn was overcast, and a dismal reaction set in. Erasmus tells us that, about 1518, a body of brutal obscurantists appeared in the university, who, calling themselves Trojans, attempted by ridicule and petty persecution to discourage the study of Greek. The king was induced to interfere, and the nuisance was after a while suppressed. At Cambridge, though the study of Greek appears to have been introduced later than at Oxford, it was carried on without check or discouragement, and was supported by endowments at a later period than at the sister university.

From the suppression of the monasteries in 1536 to the end of his reign, the violence and brutality of Henry VIII. exercised a baneful effect on the progress of learning. Instead of conferring together about the Greek particles, Oxford men were obliged to consider what they should think and say about the king's divorce.

The fate of More, the finest scholar at Oxford, and a writer of European reputation, of whom Charles V. said to the English ambassador, "We would rather have lost the best city of our dominions than such a worthy counselor," dispirited and alarmed all English men of letters. In such dangerous times wariness, quietness, unobtrusiveness, must have seemed to be the one way of safety. When the tyrant died, men breathed indeed more freely; but the rapacity and indifference to letters of Protector Somerset's government must have filled all university men with the feeling that the tenure of their endowments was anything but secure, and such a state of mind is not good for the pursuits of learning. Under Mary there was some revival of literary activity; a collection was made and published of the English works of Sir Thomas More; and new editions of Gower and Lydgate were printed. The accession of Elizabeth brought another change. The schoolmen were again ejected, and with contumely, from English seats of learning. By a singular irony of fate, the name of the owner of one of the brightest and most penetrating intellects ever given to man, Duns Scotus, came to be used, in England, as a synonym for a blockhead. Polite literature was now so exclusively cultivated that it destroyed philosophy. The old systems were discredited, but no new system was adopted in their place. In the first twenty years of the reign of Elizabeth, though exact scholarship did not flourish much, there was a great and very beneficial activity in the work of making translations from the classics. The names of Golding, North, Phaier, Marlowe, and Stanhust indicate the authors of the chief of these. Fairfax and Harrington translated the masterpieces of Tasso and Ariosto. But for the ample store of fresh materials thus supplied, the genius of Shakespeare, who had not a university education, must have displayed itself under comparatively restricted forms.

In the article DRAMA it was described how the modern drama grew up under the shadow of the Church, and an attempt was made to convey a clear notion of the mode in which the ancient miracle plays were performed. As the people grew richer and more numerous, and the arts of life were improved, and experience suggested ways of correcting blemishes and adding fresh splendor to the spectacle, these plays were exhibited with ever increasing pomp. Yet, at the same time, the lay spirit getting hold of them more and more, and the religious laxity of the Renaissance attacking the clergy, we find those which date from the fifteenth century not only grotesque, but gross to the last degree. Their composition in many parts betrays a scandalous accommodation or condescension to the brutality or pruriency of the hearers. Take for instance, the scene called "The Bridal of Mary and Joseph" in the *Coventry Mysteries*. To interest masses of ignorant people it may have been necessary to be simple, broad, and outspoken; but it could not have been necessary to introduce a heap of filthy jokes, not found in their original, gathering round the mystery of the Incarnation, for the sake of raising a horse-laugh, and covering the cheeks of the country girls with blushes. It must be remembered that the entire system of language and allusions in these plays is contemporary. The moral effects upon juvenile spectators of so much loose talk, conveyed to them, as it was with a sanction (for a religious aim was always professed, and indeed as a rule sincerely entertained in these exhibitions), cannot have been of an improving nature.

Gradually something more refined, more in the fashion, than any miracle play, was called for at courts and colleges. Then arose the moral plays, in which the allegorical treatment and metaphysical refinements which were of the taste of the age were applied to dramatic entertainments. Saints and angels were dis-

carded; and virtues, vices, and abstract notions of various kinds took their place as the *dramatis personæ*. The devil of the miracle plays, who had more and more become a grotesque and comic character, at least in many of them, appeared as the "vice" or "iniquity" of the moral plays, and introduced into them also a corresponding comic element; this "vice," as is well known, was gradually transformed into the clown of the modern stage.

VI. *The Old Civilization in conflict with Puritanism, 1579-1660.*—Regarding the position of the Roman See in the Christian Church as a "separable accident," the acceptance or rejection of which made no essential difference, the literary men of the latter part of the reign of Elizabeth, while rejecting, chiefly on political grounds, the authority of that See, had no quarrel in other respects with the religion which had come down to them from their forefathers, nor with the forms of civilization and efforts toward a higher culture which that religion had encouraged. Both in Spenser and Shakespeare we notice a decided repugnance toward Rome, and a disposition to deny her claim to obedience; but with this exception they belong to the old school; they might have been Englishmen of fifty years before, instead of twenty or thirty years after, the Reformation. The poets and dramatists of this period, as well as a large body of the clergy, clung heartily to the civilization and culture which they had inherited from the past. To this form of civilization the Puritan or ultra-reforming party, was radically opposed. The culture which had gathered treasures from every side, and welcomed all that was good and beautiful in paganism, was tainted and abominable in their eyes. To them it seemed that a Christian society should be exclusively formed and built up on models furnished by the Old and New Testaments. To come to the particular tendencies of Puritanism with which we have now to do—it looked with sour displeasure on the English poetry and drama of the day, and, according as it possessed power, suppressed them. Why, if they must rhyme, could they not compose comfortable hymns of Zion, and if they must have music, sing the Psalms of David? Again, innumerable allusions in the works of the dramatists of this and the next reign, including Shakespeare, prove the animosity which subsisted between them and the Puritans, whom they rightly regarded as the implacable enemies of their art. On the outbreak of civil war the Puritans, gaining the upper hand in London, immediately shut up the theaters. It is not, therefore, without reason that we have characterized the epoch which we are considering as that of the "conflict between Puritanism and the old civilization."

Poetry, which does not, like the drama in its more developed stages, require any local establishment in order to produce its effects, pursued its flight in defiance of Puritan censure. It was not, however, unaffected by it. The disapproval of him and his works, entertained by a large section among the most virtuous of his countrymen, irritated the poet by its exaggeration, and often made him out of recklessness import an additional degree of license into the language. Yet morality was in the end the gainer. For in spite of narrowness, and exaggeration, and occasional hypocrisy, there was real earnestness and virtuous intention in the great body of the Puritans; and to these qualities society eventually did homage by refusing to tolerate, in poetry at least, what was openly and scandalously immoral. In spite of one or two who leap over the line, poetry in the eighteenth century, and still more in the nineteenth, has not permitted her votaries to write as they please, but has prescribed to them measure and seemliness. This may indeed be attributed to the increasing refinement of

European life, but that refinement itself, so far as it is moral, is to a large extent the work of the Puritan spirit.

Without further preface let us turn to the consideration of that amazing phenomenon, the literature of the Elizabethan age. Many circumstances, many slowly elaborated changes, had prepared the way. The cautious peace-policy of Elizabeth, her wise love of economy, and her care to surround herself with able counselors, produced their natural fruits in a state of general prosperity never experienced before. Every adventurous and inquiring mind was stimulated by the reports continually arriving of the discovery of "islands far away," of riches and beauty, which the earth had hitherto veiled from her children, revealed to wondering eyes in America and the East, of inventions which enlarged the power, and discoveries which widened the knowledge of man. Again the greatly augmented use of the language as a literary instrument, consequent upon the religious discussions now temporarily silenced, had, as already explained, made it a much fitter organ for thought than it had been in the reign of Henry VIII. Lastly, the powerful influences now pressing in from abroad must be duly weighed. The genius of Ariosto had clothed mediæval romance in a splendid garb, which, for the first time since the thirteenth century, made the subject attractive to cultivated minds. Tasso's epic, with its sustained grace and sweetness, had shown how the shades and half-shades of sentiment in which refined spirits delight can be expressed by corresponding *nuances* of language.

Reaction and Counter-Action, 1660-1700.—At the Restoration, the king and his personal friends, who had lived abroad during the Commonwealth and Protectorate, brought to England a sense of fitness in things literary, and an aversion to what was grotesque and exaggerated in style, which they had picked up in the polished society of the French salons.

The prose style of the French writers was, at the time of the Restoration, much superior to ours. We had no one to oppose to Segrais, Fontenelle, Balzac, Voiture, Menage, and Bouhours, to select only the principal names among the French critics and *beaux esprits*. Nor was this superiority of our neighbors sensibly diminished till the next century, when Addison, Steele, and Swift redressed the balance. Yet it must be conceded to Dryden that the prose of his numerous essays, prefaces and dedications, prefixed or subjoined to his published plays, is comparably more polished and more effective than any of the rude attempts at criticism which our writers had hitherto attempted.

In political philosophy the reactionary spirit was represented by Sir Robert Filmer, who, in his *Patriarcha* (1680), argued that legitimate kings inherited the absolute power over their subjects, which he assumed Adam and the patriarchs to have possessed and exercised over their families. This doctrine was opposed by the republican Algernon Sidney, and also by Locke, whose admirable *Treatises on Government* appeared in 1688. Though not indisposed to admit that the monarchical constitution of existing kingdoms was originally *imitated* from the patriarchal rule, which in the infancy of society is known to have existed, nay, which still exists in families and clans, Locke denied that this imitation implied any devolution of right or power; the origin of civil right he sought in a contract, expressed or implied, between the governors and the governed, which bound the one to govern on certain prescribed terms, that is, according to law, and the other to obey the lawful commands of the government. It is well known that this doctrine of an original contract found its way into that celebrated state-paper, the Declaration of Rights, in

which it is asserted that James II. had "endeavored to subvert the constitution of this kingdom, by breaking the original contract between king and people."

In other departments of literature, as well as political philosophy, the counter-action strongly asserted itself. Milton, "on evil tongues though fallen, and evil times," knew that he should "fit audience find, though few," when at the close of life he gave his long-promised service to the epic muse, and sang "an elaborate song to generations."

The Age of Queen Anne, 1700-1720.—Weary of life, Dryden had descended into the tomb; and his mantle had fallen on no poet. A poet, however, appeared before long. This was Addison. The innumerable verses composed by Swift were written rather to give vent to his spleen, and exercise his misanthropic humor, than under the presence of any motive which ordinarily influences poets.

By turning to fresh intellectual fields the minds of the upper classes—the people in good society—to whom the theater was now a forbidden or despised excitement. Addison and Steele did without doubt allay much restlessness, still or amuse many feverish longings. Its ideals discredited or found impracticable, the English mind, disenchanted and in heavy cheer, took up with languid interest these pleasant chatty discourses about things in general, and allowed itself to be amused, and half forgot its spiritual perplexities. Nothing was settled by these papers, nothing really probed to the bottom; but they taught, with much light grace and humor, lessons of good sense and mutual tolerance; and their popularity proved that the lesson was relished. The characterization which we meet with in the *Spectator* has been justly admired. Sir Roger de Coverley is an excellent type of the English country gentleman of that day—unintelligent and full of prejudices, but manly, open-hearted, and conscientious. The mercantile classes are represented, less adequately, yet in a dignified and attractive manner, by Sir Andrew Freeport. "Captain Sentry" as the representative of the army, is not so satisfactory; compare him with "Uncle Toby" and "Corporal Trim" in Sterne's *Tristram Shandy* and the contrast between a dull, wooden figure, and personages who bring in the life of the British army in Flanders exactly and vividly before our eyes, is immediately apparent.

The theological controversies of the period were carried on chiefly between deists and churchmen on the one hand, and non-jurors and oath-takers on the other. There will always be able men to whom revealed religion will not commend itself, because demonstrations of its truth is in the nature of things impossible, and the portal through which conviction must be reached is too lowly for many to enter. In this age of reasoning, the English writers who followed Hobbes in eliminating the supernatural from Christianity considered it to be their duty to exhibit their proofs in the clearest and most systematic manner. Thus arose the school of English deists.

In philosophy the trains of thought which Hobbes and Leibnitz had pursued were either further developed, or led to opposing reactions. Hobbes' selfish theory of morals, and his disposition to leave out the idea of God from his system of the universe, found resolute opponents, not only in Clarke and Berkeley, but also in Shaftesbury, the noble author of the *Characteristics*. The treatises composing this work were published at various times between 1708 and 1713. Shaftesbury maintains the disinterested theory of morals, but rather in a rhetorical way than with much solidity of argument: he derives virtue, beneficence, and compassion, not from a source tainted by self-interest, but from the

delight which the mind naturally takes in actions and feelings conformable to its own unperturbed nature. In his general reasoning on the constitution of nature and of man, Shaftesbury is an optimist.

In France and Spain, Lesage and Lazarillo de Tormes had already won laurels by writing humorous tales of fiction in prose. Defoe, with us, was the first of a series in which he has had so many brilliant successors, by composing *Robinson Crusoe* (1719). Many other fictitious tales, in all which he aimed at the appearance of being a truthful narrator of facts, followed from the same facile pen. But in the texture of these, as in the mind that produced them, there was something coarse and homely; they could not supplant for refined readers the high-flown romances of France. That was reserved for the sentimental novels of Richardson.

The Triumph of Compromise, 1720-1789.—In the early part of this period, Pope, who died in 1744, was still the great literary force; for most of the remainder of it, that honor belonged to Samuel Johnson. Nothing can more strongly demonstrate the vitality of the political principles which triumphed at the Revolution than the fact that both these great men, though in secret they abhorred the compromise, had no choice but to acquiesce in it. Pope, whose grounds of dislike were both religious and political, indemnified himself for his acquiescence by many a scornful gibe and bitter sarcasm leveled at the German family which had seated itself on the Stuart throne. The defect of a compromise is, that it does not kindle enthusiasm; under it politics and politicians are apt to grow dull and vapid. Such a state of things prevailed at the time of the rising of 1745, when the young Pretender was not very far from succeeding, from sheer inertness on the part of those concerned in upholding the Revolution settlement. Soon afterward there was a change. Young men grew up, before whose eyes floated visions of an expanding empire; the rapid advance of the American colonies, the success of Englishmen in India, on both of which fields France was then our rival, stimulated the genius of the elder Pitt, and furnished themes for the eloquence of Burke. Then the value of those principles of political liberty which had been consolidated at the Revolution, came to be understood. Through these Pitt achieved in the Seven Years' War his memorable triumph over the absolute monarchies of France and Spain; and at the Peace of Paris (1763) England stood at the greatest height of national glory which is recorded in her history.

This period witnessed the foundation of the science of political economy by Adam Smith, whose memorable *Inquiry into the Nature and Causes of the Wealth of Nations* appeared in 1776. Cowper, ever on the brink of insanity, resorted to literature in order to prevent his mind from preying on itself.

Beyond the Tweed, as Johnson was sinking toward the grave, and when the voice of English poetry had almost ceased to sound, a man of genius was coming to maturity, whose direct and impassioned utterances, straight from the heart of nature, were to reduce the frigid imitators of Pope to their proper insignificance, to startle the dull worshippers of the conventional, and to prepare the English-speaking world for that general break-up of formulas which the tempest of the French Revolution was about to initiate. Robert Burns was a native force; no foreign literature molded him, no influence of Continental thought either made or marred him. He had the education of a Scottish peasant, and his self-culture does not appear to have consisted in much more than reading Pope and Shensstone, the *Spectator*, Sterne's novels, and a few other popular books. His natural powers were of the finest and highest order.

Prose fiction more and more came to supply that kind of intellectual distraction which had before been sought in the drama. Fielding's *Tom Jones* and *Amelia*, Richardson's *Clarissa Harlowe* and *Sir Charles Grandison*, made the same kind of stir in general society that had been caused by Dryden's heroic plays some eighty years before. His abrupt half-declaration to Harriet — "Honor forbids me; yet honor bids me; — yet I cannot be unjust, ungenerous, selfish!" — is a delicious *morceau* which can never fail to captivate, and fill with *attendrissement*, souls of sensibility. After Richardson and Fielding came Smollett, with his *Roderick Random* and *Humphrey Clinker*, novels of coarser mold, and *Tristram Shandy* and the *Sentimental Journey*. As works of humor, which contain also several admirable and minutely drawn pictures of character, the two last-named works, or at any rate *Tristram Shandy*, stand alone in our literature.

To the novels already mentioned Goldsmith's *Vicar of Wakefield* (1766) must be added — the book which first drew Goethe's attention to English literature, and disclosed the hitherto unsuspected *idyllic* side of the existence of the good Protestant village pastor.

The luminous intellect of Voltaire had, in the *Essai sur les Mœurs*, cast a fresh light on history, which was soon reflected in the writings of English students in this field. In the preface to the *Essai*, Voltaire said that the question was no longer to inform the world "in what year a prince who did not deserve to be remembered succeeded another barbarian like himself, in the midst of a rude and coarse nation." Henceforth it would be the business of a historian to seek out, amidst the throng of recorded events, "that which deserve to be known by us — the spirit, the manners, the usages of the principal nations." Not believing in Christianity, and looking to intellectual and literary culture as the great means of human progress, Voltaire naturally regarded the history of the first ten centuries of our era as "no more deserving of being known than the history of the wolves and the bears;" feudalism and the Middle Ages filled him with disgust; it was only when he came to the Renaissance, with its revival of learning, its tolerance of theological differences, and its love of polish, that he seemed to find anything worth writing a history about. Hume, composing a *History of England* (1754) under the influence of ideas not very dissimilar to those of Voltaire, and commencing with the Stuart period, was not likely to write favorably of the Puritans, who were neither tolerant nor polished. Robertson's historical pictures — of Scotland, of Charles V., and of the settlement of America — did not, except incidentally, go back beyond the period of the Renaissance.

Gibbon's great work, the *Decline and Fall of the Roman Empire*, is designed to trace the gradual political debilitation of the empire, and the extinction of letters and arts through the ravages of the barbarians; thence passing with a firm and vigorous step through the long night of barbarism he dilates with eloquence and delight on the story of the rekindling of the flame of learning, and the renewed appreciation of beauty and refinement, which characterized the Italian Renaissance of the fourteenth and fifteenth centuries.

A return upon skepticism was a frequent incident in the history of the Greek schools of thought, especially when the principles of opposing systems had been put forth with unusual warmth, and their supporters had found reconciliation and the explanation of differences out of the question. An example of this, in the history of English thought, is furnished by the case of Hume. The colossal system of Kant was known to Dugald Stewart (whose first work, *Outlines of Moral Philosophy*, appeared in 1793), but only through the medium

of an imperfect Latin translation; from this cause, probably, he is thought to have failed to do full justice to it.

The French Revolution, 1789-1832. — Probably there was not a single gifted mind in any country of Europe upon which the tempest of the French Revolution did not come with a stimulating or disturbing influence. Young men — hasty counselors ever, from the days of Rehoboam — thrilled with hope and flushed with excitement, announced and believed that a golden age had opened for mankind. Wordsworth hastened from Cambridge in 1792 to France, where he lived more than a year, and formed some Girondist acquaintances; Coleridge invented a scheme for an ideal community which was to form a model settlement, to be conducted on principles of pantisocracy, on the banks of the Susquehanna; Southey nearly got himself into trouble by publishing *Wat Tyler*, a dramatic sketch of an inflammatory and seditious character. On the other hand, the young Walter Scott looked with shrewd, clear eyes on the tumultuous scene, and was not tempted to throw himself into the vortex; for him the treasures of Europe's mighty past were real and precious, and not to be bartered for any quantity of visionary hopes and fairy gold. Soon the proceedings of the Revolutionists made it clear enough that human nature and human motives were not changed; and the ranks of reaction were rapidly filled. In England an immense effect was produced by the appearance of Burke's *Reflections on the French Revolution* in 1791. The sympathizers with the French republicans dwindled in number so fast, that at the end of the century, as it was sportively said, the whole of the opposition to Pitt's government in the House of Lords went home from the debate in a single hack cab. Wordsworth, Southey, and Coleridge changed round to the Conservative side. The appearance in France of the *Génie du Christianisme* (1802) by Chateaubriand marked the commencement of the great continental reaction. The public policy of England became essentially conservative; she endeavored to prop up all the old monarchies on the Continent, whether they deserved to live or not; she harbored thousands of French priests; she supported the temporal power of the pope. A remarkable dissonance hence arose between the policy of the country and some of the finest notes in its literature. While the English aristocracy was putting forth its full strength to combat Jacobinism by land and sea, the spirit of revolution breathed from the passages of Shelley and Byron. The war with Napoleon was waged with the approval of the great majority of the nation; but the able critics and publicists who conducted the *Edinburgh Review* (started in 1802) were vehemently opposed to it, and would, if their influence had prevailed, have withdrawn the sword of England from the contest at least ten years before Waterloo.

The romantic poems of Scott (*Lay of the Last Minstrel*, *Marmion*, *Lady of the Lake*, etc.) were popular because they were in sympathy with the return (now strongly pronounced) of the European mind toward chivalry, feudalism, and the medieval spirit. The works of the Renaissance were no longer praised; its art was held to be imitative or debased, its refinement to be superficial, its enthusiasm fictitious. Taking its cue from Rousseau, all the world was thirsting, or pretending to thirst, after nature and simplicity; the *naïveté* and spontaneity, real or imagined, of the "ages of faith" seemed incalculably better than the *finesse* and self-consciousness of modern times. Working this vein somewhat too long, Scott was at last outshone in it by Byron, whose romantic tales (*Bride of Abydos*, *The Corsair*, *The Giaour*, etc.) were still more remote from

the dullness and conventionality of ordinary life than those of Scott. In *Childe Harold*, a poem finely but unequally versified in the Spenserian stanza, the noble poet described himself traveling through Spain, Italy and Greece, a prey to melancholy discontent, brooding over the perishing relics of departed greatness, but unable to utter any formula potent for its re-creation other than vague cries for the bursting of all fetters which repress the spirit or the limbs of men. The increasing moral disorder of Byron's mind is marked by the appearance of *Don Juan*, a long, rambling poem, written after his wife had left him, and he had gone to the continent in 1816, never to return. In 1823 he joined the Greek insurgents who had taken arms to throw off the Turkish yoke. He landed at Missolonghi, spent large sums of money, but effected nothing of importance; and in April, 1824, he was cut off by a fever.

Shelley is a striking illustration of the influence which the revolutionary literature of that age possessed in molding or modifying human character. His own earliest recollections dated to a time when all ranks of English society were animated by feelings of horror and detestation at the French "Terror," and in no mood to embrace any revolutionary sentiment, or even give a hearing to any novel opinion. Yet the mind of Shelley—nursed upon the skeptical suggestions of Hume, the utopian speculations of Godwin, and the antinomian dreams of Rousseau, and pushing to extremes, from the fervor of a nature in which prudence and diffidence found no place, all that he read—was in a state of high revolt, even in his college days, against all that was held sacred by other men. Sent away from Oxford, he fell in with the bright, high-spirited Harriet Westbrook, and induced her to marry him. But all bonds, including those of matrimony, which fettered the free inclinations of the mind, Shelley had taught himself to regard as a tyranny to be withstood. He grew tired of Harriet, formed a connection of free love with Mary Godwin, and deserted his hapless wife, who, two years afterward, committed suicide. Whether Shelley would ever have brought his wild actions and wilder thoughts under any discipline it is impossible to tell, for he was cut off by a sudden and early death. His poems display the most perfect and wonderful mastery of the resources of the English language for the purposes of imaginative expression that has ever been attained to among our poets. As Pope and Dryden gave us logic in meter, so Byron and Shelley gave us rhetoric in meter. Splendid pieces of declamation may be found in the *Childe Harold* and *Isles of Greece* of the one poet, and in the *Hellas* and *Revolt of Islam* of the other. The *Sky-lark*, and some other poems, considered as creations of the pure imagination, have surely never been surpassed.

An accidental circumstance—the finding of an old unfinished MS. in a forgotten nook of a cabinet—turned Sir Walter Scott into the path of prose fiction, in which his strong memory and inexhaustible imagination, joined with a gift for picturesque description, and the faculty, within certain limits, of creating and presenting living types of character, eminently qualified him to excel. Then was given to the world the long and splendid series of novels, commencing with *Haverly* and ending (when his mind had partially given way) with *Castle Dangerous*.

Since the death of Scott, the power of literature, combined with journalism, has been continually on the rise. The novelists, while describing, have modified our social customs; the essayists have been instrumental in bringing about political reforms; the poets have stirred generally to thoughts and desires of change—the impressible hearts of the young. The power of art over the human mind, and its influence in determining

the aspects of life, have been, in all English-speaking countries, declining, while that of literature has been advancing. Whether this particular distribution of the master-influences that affect mankind will continue to prevail, or whether art is destined to regain among us a portion of its early power, and the sway of literature to be correspondingly restricted, is a question which the future must decide.

ENGRAVING. The verb *engrave* is an old French word adopted by the English language, in which it bears at the present day but one signification, that of marking by incision. The *grave* in which the dead are buried is connected with these words both by its meaning and its etymology. The idea of a furrow or cutting is essential to engraving, much more essential than any artistic idea. The rudest mark which is cut into the substance of anything is really an engraving, while the most admirable drawing which does not cut into the surface is not engraving at all.

Engraving may then be defined as writing or drawing, in which the marks are produced by removing a portion of the substance on which the writing or drawing is made, instead of by simply staining or discoloring it as ink and lead pencil do, or covering it with an opaque or transparent pigment as in oil-painting.

The idea of multiplication by printing, or by casting (as in seal engraving), is a mere accidental suggestion and not an essential part of the art. Engraving preceded printing, and is still much used without any connection with printing, as in the chased ornamentation of silver plate, fire-arms, jewelry, and other objects of luxury.

The engraver, in the fine arts, is almost invariably occupied in translating the works of painters, as by his intervention they can afterward, at least in translation, be widely disseminated by the press.

There are several different varieties of engraving, the chief of which are—(1) Line engraving on metal plates, usually of copper or steel, in which the line is always incised; (2) etching, usually on metal, in which the lines are corroded by means of acid; (3) mezzotint, in which there are no lines whatever, but only shades produced by roughening the surface of the metal; and (4) woodcut, in which the lines which print black have to be left in relief, while the surface round them is cut away.

These primary technical conditions have an irresistible influence even upon the mental qualities exhibited in the different kinds of engraving. Each kind is favorable to certain mental states, and unfavorable to others, each being in itself an artistic as well as a technical discipline. A line engraver will not see or think like an etcher, nor an etcher like an engraver in mezzotint; and the consequence of this difference is that the manner in which a line has to be cut has a great influence in determining the direction of artistic taste and feeling. Nor is this influence confined to the engravers themselves. The enormous multiplication of their works by printing makes engravers only second to writers in their power over public taste, which they can refine or vitiate by spreading refined or vulgar interpretations of pictures.

Wood Engraving.—It is natural that wood engraving should have occurred first to the primitive mind, because the manner in which woodcuts are printed is the most obvious of all the kinds of printing. If a block of wood is inked with a greasy ink and then pressed on a piece of paper, the ink from the block will be transferred at once to the paper, on which we shall have a black patch exactly the size and shape of the inked surface. Now, suppose that the simple Chinese who first discovered this was ingenious enough to go a step further, it would evi-

dently occur to him that if one of the elaborate signs, each of which in his own language stood for a word, were drawn upon the block of wood, in reverse, and then the whole of the white wood sufficiently cut away to leave the sign in relief, an image of it might be taken on the paper much more quickly than the sign could be copied with a camel-hair brush and India ink. No sooner had this experiment been tried and found to answer than block-printing was discovered, and from the printing of signs to the printing of rude images of things, exactly in the same manner, the step was so easy that it must have been made insensibly. Wood engraving, then, is really nothing but that primitive block-cutting which prepared for the printer the letters in relief now replaced by movable types, and the only difference between a delicate modern wood cut and the rude letters in the first printed books is a difference of artistic skill and knowledge. In Chinese and Japanese woodcuts we can still recognize traditions of treatment which come from the designing of their written characters. The main elements of a Chinese or a Japanese woodcut, uninfluenced by European example, are dashing or delicate outlines and markings of various thickness, exactly such as a clever writer with the brush would make with his India ink or vermilion. Often we get a perfectly black blot, exquisitely shaped and full of careful purpose, and these broad vigorous blacks are quite in harmony with the kind of printing for which wood engraving is intended.

It has not hitherto been satisfactorily ascertained whether wood engraving came to Europe from the East or was rediscovered by some European artificer. The precise date of the first European woodcut is also a matter of doubt, but here we have certain data which at least set limits to the possibility of error. European wood engraving dates certainly from the first quarter of the fifteenth century. It used to be believed that a cut of St. Christopher, very rudely executed, and dated 1423, was the Adam of all our woodcuts, but subsequent investigations have shaken this theory. There is a cut in the Brussels library, of the Virgin and Child surrounded by four saints, which is dated 1418, but the composition is so very elegant and the drawing so refined and beautiful, that one has a difficulty in believing the date, though it is received as authentic. The Virgin and Child of the Paris library is without date, but is supposed, apparently with reason, to be earlier than either of the two we have mentioned; and M. Delaborde has proved that two cuts were printed in 1406.

The very earliest wood engraving consisted of outlines and white spaces with smaller black spaces, but shading is rare or absent. Before passing to shaded woodcuts we may mention a kind of wood engraving practiced in the middle of the fifteenth century by a French engraver, often called Bernard Minet, though his name is a matter of doubt, and by other engravers nearer the beginning of that century. This method is called the *criblé*, a word for which there is no convenient translation in English. It means, *riddled with small holes*, as a target may be riddled with small shot. The effect of light and dark is produced in this kind of engraving by sinking a great number of round holes of different diameters in the substance of the wood, which, of course, all come white in the printing; it is, in short, a sort of stippling in white. When a more advanced kind of wood engraving had become prevalent the *criblé* was no longer used for general purposes, but it was retained for the grounds of decorative wood engraving, being used occasionally in borders for pages, in printer's marks, and other designs, which were survivals in black and white of the ancient art of illuminating. Curiously enough, this kind of wood engraving, though long disused for pur-

poses of art, has of late years been revived with excellent effect for scientific purposes. It is now the accepted method of illustration for astronomical books. The black given by the untouched wooden block represents the night sky, and the holes, smaller or larger, represent in white the stars and planets of lesser or greater magnitude. The process is so perfectly adapted to this purpose, being so cheap, rapid, and simple, that it will probably never be superseded. The objections to it for artistic purposes are, however, so obvious that they were soon perceived even by the untrained critical faculty of the earlier workmen, who turned their attention to woodcut in simple black lines, including outline and shading. In early work the outline is firm and very distinct, being thicker in line than the shading, and in the shading the lines are simple, without cross-hatchings, as the workmen found it easier and more natural to take out a white line-like space between two parallel or nearly parallel black lines than to cut out the twenty or thirty small white lozenges into which the same space would have been divided by cross-hatchings.

Wood engraving in the sixteenth century was much more conventional than it is in the present day, and this very conventionalism enabled it to express what it had to express with greater decision and power. The wood engraver in those days was free from many difficult conditions which hamper his modern successor. He did not care in the least about aerial perspective, and nobody expected him to care about it; he did not trouble his mind about local color, but generally omitted it, sometimes, however, giving it here and there, but only when it suited his fancy. As for light and shade, he shaded only when he wanted to give relief, but never worked out anything like a studied and balanced effect of light and shade, nor did he feel any responsibility about the matter. What he really cared for, and generally attained, was a firm, clear, simple kind of drawing, conventional in its indifference to the mystery of nature and to the poetic sentiment which comes to us from that mystery, but by no means indifferent to fact, of a decided and tangible kind. The wood engraving of the sixteenth century was a singularly positive art, as positive as carving; indeed, most of the famous woodcuts of that time might be translated into carved panels without much loss of character. Their complete independence of pictorial conditions might be illustrated by many examples. In Dürer's Salutation the dark blue of the sky above the Alpine Mountains is translated by dark shading, but so far is this piece of local color from being carried out in the rest of the composition that the important foreground figures, with their draperies, are shaded as if they were statues in plaster of Paris.

In Holbein's admirable series of small well-filled compositions, the Dance of Death, the firm and matter-of-fact drawing is accompanied by a sort of light-and-shade adopted simply for convenience, with as little reference to natural truth as might be expected in a stained-glass window. There is a most interesting series of little woodcuts drawn and engraved in the sixteenth century by J. Amman, as illustrations of the different handicrafts and trades, and entitled, *The Baker, The Miller, The Butcher*, and so on. Nothing is more striking in this valuable series than the remarkable closeness with which the artist observed everything in the nature of a hard fact, such as the shape of a hatchet or a spade; but he sees no mystery anywhere — he can draw leaves but not foliage, feathers but not plumage, locks but not hair, a hill but not a landscape. In the *Witches Kitchen*, a woodcut by Baldung Grün, of Strasburg, dated 1510, the steam rising from the pot is so hard that it has the appearance of two trunks of trees denuded of their bark, and makes a pendant in the composition to a real

tree on the opposite side which does not look more substantial. The clouds of steam round about the jet are like puddings. Nor was this a personal deficiency in Baldung Grün. It was Dürer's own way of engraving clouds and vapor, and all the engravers of that time followed it. Their conceptions were much more those of a carver than those of a painter. Dürer actually did carve in high relief, and Grün's *Witches' Kitchen* might be carved in the same manner without loss; indeed it has the appearance of an *alto-relievo* with the ground tinted darker than the carvings. When the engravers were rather draughtsmen than carvers, their drawing was of a decorative character. For example, in the magnificent portrait of Christian III. of Denmark by Jacob Binck, one of the very finest examples of old wood engraving, the face and beard are drawn with few lines and very powerfully, but the costume is treated strictly as decoration, the lines of the patterns being all given, with as little shading as possible, and what shading there is is simple, without cross-hatching.

The perfection of simple wood engraving having been attained so early as the sixteenth century, the art became extremely productive, and has been so ever since. During the seventeenth and eighteenth centuries it still remained a comparatively severe and conventional form of art, because the workmen shaded as much as possible either with straight lines or simple curves, so that there was never much appearance of freedom. Modern wood engraving is quite a distinct art, being based on different principles, but between the two stands the work of an original genius, Bewick, who cannot be overlooked. He was born in 1755, and died in 1828. Although apprenticed to an engraver in 1767, he was never taught to draw, and got into ways and habits of his own which add to the originality of his work, though his defective training is always evident. His work is the more genuine from his habit of engraving his own designs, which left him perfect freedom of interpretation, but the genuineness of it is not only of the kind which comes from independence of spirit, it is due also to his fidelity to the technical nature of the process, a fidelity very rare in the art.

The two centuries in which wood engraving has developed itself most remarkably are the sixteenth and the nineteenth. Wood engraving in the nineteenth century has no special character of its own, nothing like Bewick's work, which had a character derived from the nature of the process; but, on the other hand, the modern art is set to imitate every kind of engraving and every kind of drawing. Thus we have woodcuts that imitate line engraving, others that copy etching and even mezzotint, while others try to imitate the crumbling touch of charcoal or of chalk, or the wash of water-color, or even the wash and the pen-line together. The art is put to all sorts of purposes; and, though it is not and cannot be free, it is made to pretend to a freedom which the old masters would have rejected as an affectation. Rapid sketches are made on the block with the pen, and the modern wood engraver sets himself patiently to cut out all the spaces of white, in which case the engraver is in reality less free than his predecessor in the sixteenth century, though the result has a false appearance of liberty. The woodcut is like a polyglot who has learned to speak many other languages at the risk of forgetting his own. And, wonderful as may be its powers of imitation, it can only approximate to the arts which it imitates; it can never rival each of them on its own ground. It can convey the idea of etching or water-color, but not their quality; it can imitate the manner of a line engraver on steel, but it cannot give the delicacy of his lines. Whatever be the art which the wood engraver imitates, a practiced eye sees at the first

glance that the result is nothing but a woodcut. Therefore, although we may admire the suppleness of an art which can assume so many transformations, it is certain that these transformations give little satisfaction to severe judges. We are bound, however, to acknowledge that in manual skill and in variety of resource modern wood engravers far excel their predecessors. A Belgian wood engraver, Stéphane Pannemaker, exhibited at the Salon of 1876 a wood-cut entitled *La Baig-neuse*, which astonished the art-world by the amazing perfection of its method, all the delicate modeling of a nude figure being rendered by simple modulations of unbroken line. Both English and French publications abound in striking proofs of skill. The modern art, as exhibited in these publications, may be broadly divided into two sections, one depending upon line, in which case the black line of a pen sketch is carefully preserved, and the other depending upon tone, when the tones of a sketch with the brush are translated by the wood engraver into shades obtained in his own way by the burin.

Copper and Steel Plate Engraving.—Engraving on plates of copper and steel is the converse of wood engraving in method. In line engraving it is the line itself which is hollowed, whereas in the woodcut, as we have seen, when the line is to print black it is left in relief, and only whitespaces and white lines are hollowed. There was no difficulty about discovering the art of line engraving, which has been practiced from the earliest ages. The prehistoric Aztec hatchet given to Humboldt in Mexico was just as really and truly engraved as a modern copper-plate with outlines after Flaxman or Thorwaldsen; the Aztec engraving is of course ruder than the European, but it is the same art. The important discovery which made line engraving one of the multiplying arts was the discovery how to print an incised line, which would not occur to every one, and which in fact was hit upon at last by accident, and known for some time before its real utility was suspected. Line engraving in Europe does not owe its origin to the woodcut, but to the chasing on gold-smiths' work. If the reader will look at any article of jewelry in which the metal is ornamented with incised designs, he will there see the true origin of our precious Dürers and Marcantonios.

The characteristics of early metal engraving in Germany are seen to perfection in Martin Schongauer and Albert Dürer, who, though with striking differences, had many points in common. Schongauer was the earlier artist of the two, as he died in 1488; while the date of Dürer's death is 1528, just forty years later. Schongauer was therefore a whole generation before Dürer, yet scarcely inferior to him in the use of the burin, though Dürer has a much greater reputation, due in great measure to his singular imaginative powers. Schongauer is the first great German engraver who is known to us by name, but he was preceded by an unknown German master, whom we now call the master of 1466, who had Gothic notions of art (in strong contrast to the classicism of Baccio Baldini), but used the burin skillfully in his own way, conceiving of line and shade as separate elements, yet shading with an evident desire to follow the form of the thing shaded, and with lines in various directions. Schongauer's art is a great stride in advance, and we find in him an evident pleasure in the bold use of the burin. Outline and shade, in Schongauer, are not nearly so much separated as in Baccio Baldini, and the shading, generally in curved lines, is far more masterly than the straight shading of Mantegna. Dürer continued Schongauer's curved shading, with increasing manual delicacy and skill; and as he found himself able to perform feats

with the burin which amused both himself and his buyers, he over-loaded his plates with quantities of living and inanimate objects, each of which he finished with as much care as if it were the most important thing in the composition. The engravers of those days had no conception of any necessity for subordinating one part of their work to another; they drew, like children, first one object and then another object, and so on until the plate was furnished from top to bottom and from the left side to the right. Here, of course, is an element of facility in primitive art which is denied to the modern artist. In Dürer all objects are on the same plane.

From Dürer we come to Italy again, through Marcantonio, who copied Dürer, translating more than sixty of his woodcuts upon metal. It is one of the most remarkable things in the history of art, that a man who had trained himself by copying northern work, little removed from pure Gothicism, should have become afterward the great engraver of Raphael, who was much pleased with his work and aided him by personal advice. Yet, although Raphael was a painter, and Marcantonio his interpreter, the reader is not to infer that engraving had as yet subordinated itself to painting. Raphael himself evidently considered engraving a distinct art, for he never once set Marcantonio to work from a picture, but always (much more judiciously) gave him drawings, which the engraver might interpret without going outside of his own art; consequently Marcantonio's work is always genuine engravings, and are never pictorial. Marcantonio was an engraver of remarkable power. In him the real pure art of line-engraving reached its maturity.

The history of line-engraving, from the time of Rubens to the beginning of the nineteenth century, is rather that of the vigorous and energetic application of principles already accepted than any new development. From the two sources we have already indicated, the school of Raphael and the school of Rubens, a double tradition flowed to England and France, where it mingled and directed English and French practice. The first influence on English line-engraving was Flemish, and came from Rubens through Vandyke, Vorsterman, and others; but the English engravers soon underwent French and Italian influences, for although Payne learned from Fleming, Faithorne studied in France under the direction of Philippe de Champagne, the painter, and Robert Nanteuil, the engraver. Sir Robert Strange studied in France under Philippe Lebas, and then five years in Italy, where he saturated his mind with Italian art. French engravers came to stay and work in England as they went to study in Italy, so that the art of engraving became in the eighteenth century a cosmopolitan language. In figure-engraving the outline was less and less insisted upon. Strange made it his study to soften and lose the outline. Meanwhile, the great classical Renaissance school, with Gérard Audran at its head, had carried forward the art of modeling with the burin, and had arrived at great perfection of a sober and dignified kind. Audran was very productive in the latter half of the seventeenth century, and died in 1703, after a life of severe self-direction in labor, the best external influence he underwent being that of the painter, Nicolas Poussin. He made his work more rapid by the use of etching, but kept it entirely subordinate to the work of the burin. The influence of Claude Lorrain on the engraving of landscape was exercised less through his etchings than his pictures, which compelled the engravers to study delicate distinctions in the values of light and dark. In this way, through Woollet and Vivarès, Claude exercised an influence on landscape engraving almost equal to that of Raphael and Rubens on the engraving of the

figure, though he did not, like those painters, direct his engravers personally.

In the nineteenth century line-engraving has received both an impulse and a check, which by many is thought to be its death blow. The impulse came from the growth of public wealth, the increasing interest in art and the increase in the commerce of art, which now, by means of engraving, penetrated into the homes of the middle classes, as well as from the growing demand for illustrated books, which have given employment to engravers of first-rate ability. The check to line-engraving has come from the desire for cheaper and more rapid methods, a desire satisfied in various ways, but especially by etching and by the various kinds of photography. Nevertheless, the nineteenth century has produced more highly accomplished work in line-engraving, both in the figure and in landscape. Its characteristics, in comparison with the work of other centuries, are chiefly a more thorough and delicate rendering of local color, light and shade, and texture.

Etching.—We mention etching amongst the causes which have operated destructively on line-engraving. The chief difference between the two arts is that in line-engraving the furrow is produced by the ploughing of the burin, whereas in etching the copper is eaten away by acid. The English word is merely an Anglicized form of the Dutch *etsen*, which has the same origin as our verb to eat, consequently, unless there is corrosion, or eating away of substance, there is no etching. The word is vulgarly and most erroneously used for pen drawing.

The two countries in which etching has been most practiced are Holland and France. It has also been successfully practiced in Italy, Germany, and England, but not to so great an extent. It has resembled line-engraving in receiving a powerful impulse from celebrated painters, but whereas, with the exception of Albert Dürer, the painters have seldom been practical line-engravers, they have advanced etching not only by advice given to others, but by the work of their own hands. Rembrandt did as much for etching as either Raphael or Rubens for line-engraving; and in landscape the etchings of Claude had an influence which still continues, both Rembrandt and Claude being practical workmen in etching, and very skillful workmen. And not only these, but many other eminent painters have practiced etching successfully, each in his own way. Ostade, Ruysdael, Berghem, Paul Potter, Karl Dujardin, etched as they painted, and so did a greater than any of them, Vandyke. In the earlier part of the present century etching was almost a defunct art, except as it was employed by engravers as a help to get faster through their work, of which "engraving" got all the credit, the public being unable to distinguish between etched lines and lines cut with the burin. During the last fifteen or twenty years, however, there has been a great revival of etching as an independent art, a revival which has extended all over Europe, though France has had by far the largest and most important share in it. It was hoped, at the beginning of this revival, that it would lead to the production of many fine original works; but the commercial laws of demand and supply have unfortunately made modern etching almost entirely the slave of painting. Nearly all the clever etchers of the present day are occupied in translating pictures, which many of them, especially Unger, Jacquemart, Flameng, and Rajon, do with remarkable ability, even to the very touch and texture of the painter. The comparative rapidity of the process, and the ease with which it imitates the manner of painters, have caused etching to be now very generally preferred to line-engraving by publishers for the translation of all pictures

except those belonging to a severe and classical style of art, for which the burin is, and will always remain, better adapted than the etching needle.

Aquatint.—This is a kind of etching which successfully imitates washes with a brush. There are many ways of preparing a plate for aquatint, but the following is the best. Have three different solutions of rosin in rectified alcohol, making them of various degrees of strength, but always thin enough to be quite fluid, the weakest solution being almost colorless. First pour the strongest solution on the plate. When it dries it will produce a granulation; and you may now bite as in ordinary etching for your darker tones, stopping out what the acid is not to operate upon, or you may use a brush charged with acid, perchloride of iron being a very good mordant for the purpose. After cleaning the plate, you proceed with the weaker solutions in the same way, the weakest giving the finest granulation for skies, distances, etc.

Aquatint may be effectively used in combination with line etching, and still more harmoniously with soft ground etching in which the line imitates that of the lead pencil.

ENGUERA, a town in the province of Valencia, in Spain, is situated in a mountainous district thirty-two miles south-southwest of Valencia and twelve miles west-northwest of San Felipe.

ENKHUIZEN, a seaport town of the Netherlands, in the province of North Holland, situated on the Zuyder Zee, twenty-eight miles north-northeast of Amsterdam.

ENNIS, a municipal and parliamentary borough and market-town of Ireland, the capital of the County of Clare, Province of Munster, is situated on the Fergus, about twenty-five miles west-northwest from Limerick, with which town and Athenry it is connected by railway.

ENNISCORTHY, a market-town of Wexford County, Ireland, thirteen miles north-northwest of Wexford, on the side of a steep hill above the Slaney, which here becomes navigable for barges of a large size.

ENNISKILLEN, a municipal and parliamentary borough and market-town of Ireland, capital of the County of Fermanagh, Province of Ulster, is situated on an island in the strait or river which connects the upper and lower lakes of Lough Erne, 102 miles northwest from Dublin and twenty-two miles from Clones by railway.

ENNIUS, Q. Although Ennius is known to us only from fragments of his writings and from ancient testimony, yet there is sufficient evidence from both sources to justify us in assigning to him a position of great eminence and influence in Roman literature. Although not the creator of that literature, for he is later in date, not only than Livius Andronicus and Nævius, but than Plautus, yet he did more than any of the early writers to impart to it a character of serious elevation, and thereby to make it truly representative of Rome. The influence of Nævius was little felt by subsequent writers; and, although the works of Plautus have enjoyed a happier fortune than those of Ennius, yet Latin comedy was essentially an exotic product, and stood in no direct relation to Roman life, nor to the deepest and most permanent moods of the national mind. On the other hand, both Lucretius and Virgil may be regarded as inheriting the spirit of Ennius; and in many fragments of his various works we recognize his affinity with the genius of Roman history, oratory, and satire.

The circumstances of his life naturally fitted him to become the chief medium of contact between the art and intelligence of Greece and the practical energy and commanding character of Rome. He was born among the Calabrian Mountains ("Calabris in montibus ortus") in

the small town of Rudiae, in the year 239 B.C., one year after the date of the first dramatic representation of Livius Andronicus, and two years after the end of the first Punic war.

From the time of his arrival in Rome till his death in 169 B.C., he devoted himself actively to various kinds of literary production, and probably to giving instruction in Greek, for which a great demand existed among the families of more liberal ideas among the Roman aristocracy. He lived on the Aventine, "in a plain and simple way, attended only by a single maid-servant" (to quote the words of Jerome in his continuation of the Eusebian Chronicle), and enjoying the friendship of the foremost men in the State, such as the great Scipio and M. Fulvius Nobilior, the conqueror of Atolia.

He died at the age of seventy, immediately after producing the tragedy of *Thyestes*. In the last book of his epic poem, in which he seems to have given various details of his personal history, he mentions that he was in his sixty-seventh year at the date of its composition. He compared himself, in contemplation of the close of the great work of his life, to a gallant horse which, after having often won the prize at the Olympic games, obtained his rest when weary with age. A similar feeling of pride at the completion of a great career is expressed in the memorial lines which he composed to be placed under his bust after death—"Let no one weep for me, or celebrate my funeral with mourning, for I still live, as I pass to and fro through the mouths of men."

ENOCH. Four persons of this name are mentioned in the Old Testament Scriptures. The first was the eldest son of Cain, who called a city which he built by the same name as his first-born. In the English Authorized Version Enoch appears, in the form *Hanoch*, as the name of the eldest son of Reuben, and of a son of Midian. The name is most familiar, however, as that of the son of Jared and the father of Methusaleh, whose life is told in Gen. v, 18-24, and further illustrated in Heb. xi, 5.

ENOS (the ancient *Ænos*), a seaport town in the metropolitan province of European Turkey, vilayet of Adrianople and sandjak of Gallipoli, is situated on the south side of the Gulf of Enos, thirty-eight miles northwest of Gallipoli and eighty miles southwest of Adrianople.

ENRIQUEZ GOMEZ, ANTONIO, the name finally adopted by a Spanish dramatist and poet, who was the son of Don Diego Enriquez Villanueva, a converted Portuguese Jew, and during the first part of his public life was known as Enrique Enriquez de Paz. He was born in Seville, probably between 1600 and 1602, and obtained a classical education. His twentieth year was hardly out when he entered the army, and his military services procured him, not only the rank of captain, but also admission into the Portuguese order of San Miguel de Avis. About 1629 a number of comedies from his pen were represented in the theater of Madrid, the *Cardenal de Albornoz* and *Fernan Mendez Pinto* being especially applauded; and he was probably still in the capital in 1635, when there appeared his *Fama póstuma á la vida y muerte de Lope de Vega*. Fear of persecution on account of his suspected Jewish proclivities seems to have led him to leave Spain in 1636; and in 1638 we find him in France, where he remained for eleven years, became councillor and majordomo to Louis XII., and continued assiduously to write and publish. Shortly after 1656 he settled in Amsterdam, and in the religious tolerance of that city made open avowal of his Judaism, and thus had the honor of appearing in effigy in the great *auto-da-fe* celebrated in Seville on April 14, 1660. The date of his death is not known, but it was probably not many years later.

ENSCHEDÉ, a town in the Overijssel province of Holland, is situated near the Prussian boundary, about forty-five miles southeast of Zwolle, at the junction of three railways.

ENTAIL (from *tailler*, to cut) really means a limited succession—one cut out by the will of the maker of the entail from the ordinary legal course of succession. The derivation of the word from *talis* (tales hæredes qui in tenore investituræ contineantur) is now abandoned. But, as an existing social institution, entail has also generally involved more or less restriction on the proprietary powers of the heirs succeeding to the subject of entail. The policy of entails has therefore been keenly discussed. The attempt to settle the matter on legal principles entirely failed. On the one hand, in the language of the civil law, *unusquisque est rei sue moderator et arbiter*. This was said to imply an unlimited right to dictate the conditions on which an estate was to be enjoyed after the death of its owner. On the other hand, it was argued that on death the ownership must change, and that the restrictions imposed on heirs of entail were inconsistent with the nature of property. These legal conceptions are themselves merely the products of different states of society. A powerful and learned writer has recently shown that the notion of absolute and exclusive private property is of quite modern date; and it may be added that the power of testamentary disposition was unknown in primitive times, and has only been very gradually admitted. In most civilized countries, so far as concerns the creation of perpetuities, it is now being curtailed in obedience to those considerations of social expediency which alone can decide the question of entails. Conservative philosophers have maintained that the hope of founding a family and an estate which will together be immortal is so great an incentive to the higher forms of industry that the state cannot afford to do without it. But the irresistible answer is that if you give this powerful motive to the founder of a perpetuity, you take it away from every succeeding generation of his descendants. They are born to wealth which their idleness will not dissipate, and possibly to social distinction which has not been earned by their exertions. Besides, it is not disputed that perpetuities are opposed to the interest of the state in the annual produce of the soil, which they place *extra commercium*. These evil consequences of entails have been vividly described by Blackstone in a passage borrowed without acknowledgment from Bacon:—"Children grew disobedient when they knew they could not be set aside; farmers were ousted of their leases made by tenants in tail; for, if such leases had been valid, then under color of long leases the issue might have been virtually disinherited; creditors were defrauded of their debts: for if tenant in tail could have charged his estate with their payment, he might have also defeated his issue by mortgaging it for as much as it was worth; innumerable latent entails were produced to deprive purchasers of the land they had fairly bought—of suits in consequence of which our ancient books are full; and treasons were encouraged—as estates-tail were not liable to forfeiture longer than for the tenant's life."

It appears from the laws of Alfred (c. 37), that entails were known before the Norman feudal law had been domesticated in England. "*Si quis terram hæreditariam habeat, eam von vendat a cognatis hæredibus suis, si illi viro prohibuit sit, qui eam ab initio acquisivit, ut ita facere nequeat.*" These grants which could not be alienated from the lineage of the first purchaser were also known as *feuda conditionata*, because if the donee had no heirs of his body the estate reverted to the donor. This right of reversion being constantly evaded by a

scale and repurchase on the birth of issue, the famous Statute of Westminster the Second, *de donis conditionabilibus*, 13 Edw. I. c. 1, was passed, which provided that the will of the donor should be observed, and that no alienation by the donee should prevent the operation of the condition. Thus was created the fee-tail, or *feudum talliatum*, of English law—a strict and practically perpetual entail. The power of alienation was re-introduced by the judges in Taltarum's case (Year Book, 12 Edw. IV. 19) by means of a fictitious suit or recovery which had originally been devised by the regular clergy for evading the statutes of mortmain. A full account of the mysteries of præcipe and vouching, and of another fictitious process of fine (*finalis concordia*) and proclamation, will be found in Blackstone, ii. 7, and Mr. Knowler's argument in Taylor and Horde, 1 Burr. 60. These forms were abolished by an Act passed in 1833, and now every tenant in tail, at least while there is a possibility of issue, may bar even his issue by executing a deed and enrolling it in the Court of Chancery, but not by will. This right is available to creditors. The erroneous notion of *heir land*, however—of something which must perpetually descend from father to son—still lingers in some country districts of England. By the common form of marriage settlement, the eldest son and the other sons of the marriage are made tenants in tail. Where the parent or some other person enjoys a life interest under the settlement, he is called the protector of the settlement, and his consent is required to the barring of the entail by the first tenant in tail. Thus, except in the case of estates tail granted by the crown as a reward for public services (see 34 and 35 Hen. VIII. c. 20), land in England cannot now be tied up for a longer period than the lives of persons in existence and twenty-one years thereafter. The rigid law of forfeiture which was applied in the time of Henry VIII. to estates tail was repealed by the Act 33 and 34 Vict. c. 23, which provides that no conviction of treason or felony or verdict of *felo de se* shall cause any attainder or corruption of blood or any forfeiture or escheat.

In Scotland, where for several centuries feuds remained inalienable beyond one-half of their extent, where the feudal aristocracy often violently resisted the approach of creditors or appraisers, and where the dawning of commerce was very late, statutory authority was not given to entails until the year 1685. As Sir George Mackenzie said in one of his pleadings, "The honor of the country standeth more by ancient families than by merchants." The word entail, indeed, is often used before the fifteenth century, but generally in the sense of a simple destination alterable by every heir in possession. Thus Sir James Balfour informs us that "infefment of tailzie is considered lawful and not prejudicial to the king's soul and conscience, and explains that the entail might at any time be broken by resignation in favor of heirs whomsoever. The earliest prohibition *de non alienando* occurs in 1489. After this it was attempted to protect the rights of substitute heirs by the diligences of inhibition and interdiction; and at last, in the early part of the seventeenth century, Sir Thomas Hope, who revised the Calderwood entail, introduced the well-known irritant and resolutive clauses, declaring void deeds in contravention of the entail and the right of the contravening heir. Cromwell, with his usual sagacity, appointed a committee to consider the legal destruction of entails; but in the celebrated Stormonth case in 1662, one of the clauses just mentioned was held to be valid at common law against creditors, who, however, had got notice of it from the title deeds. Much doubt was felt about the soundness of this decision. The first Roxburgh entail had been

addressed to the sovereign, as if to invoke special protection. The aristocracy were alarmed by the forfeitures for treason which took place under Lauderdale's administration; and accordingly the Statute of 1685 was passed, which, until 1848, remained the *foundation* of the Scotch law of entail. It adopts the style suggested by Hope (a prohibition of sales, mortgages, and alterations of succession, with irritant and resolute clauses), and provides that if the deed of entail be recorded in the register of tailzies, and if notice of the conditions be also given in the titles of the estate, the entail is to have perpetual validity. The heir in possession remained nominally proprietor, but his powers of management were in reality not much more extensive than those of a liferenter.

In the United States entail cannot be carried to a point over twenty-one years after the death of a person living at the time of the execution of the instrument conveying the property.

ENTOMOLOGY. See INSECTS.

ENTOZOA, an animal, a name applied to internal parasites. See PARASITES.

ENTRECASTEAUX, JOSEPH-ANTOINE BRUNI D'. a celebrated French navigator, was born at Aix in 1739. He entered the navy at the age of fifteen. At the commencement of the war in 1778 he commanded a frigate of thirty-two guns, and by his clever seamanship was successful in convoying a fleet of merchant vessels from Marseilles to the Levant, although they were attacked by two pirate vessels, each of which was larger than his own ship. In 1785 he was appointed to the command of the French fleet in the East Indies; and in 1787, he was named governor of the Mauritius and the Isle of Bourbon. While in command of the East India fleet, he made a voyage to China, an achievement which led the French Government to select him to command an expedition in search of La Pérouse, of whom nothing had been heard since February, 1788. Entrecasteaux failed to obtain any tidings of him, but in the course of his search he made important geographical discoveries. He traced the outlines of the eastern coast of New Caledonia, discovered many fine harbors and roadsteads on the south of Tasmania, and touched at more than 300 places on the southwest coast of New Holland. While near the island of Java he was attacked by scurvy, and died July 20, 1793.

ENZIO, King of Sardinia, who played a great part in the conflict between the empire and papacy in the first half of the thirteenth century, was one of the natural sons of the Emperor Frederick II. by his mistress, the beautiful Bianca Lancia. He was born at Palermo at the close of the year 1225, the same year in which his father married as his second wife Iolante of Jerusalem. His name is conjectured to be a corruption of the German "Hans." In his thirteenth year he fought by his father's side against the Lombards at the battle of Cortenuova; and in the following year (1238) the emperor, in pursuance of his determination to recover for the empire various territories claimed as fiefs of the Holy See, married Enzo to Adelasia, the widowed heiress of Sardinia and Corsica, and at the same time conferred on him the title of King of Sardinia. He also received the honor of knighthood from his father. In May, 1239, he was declared vicar imperial in the north of Italy, and took command of the German and Saracen troops in the imperial army. From this time Enzo was his father's right hand in war. He at once entered the March of Ancona; and so formidable to the papacy were his achievements that the most distinguished soldier-cardinal, John of Colonna, was sent against him.

Before the end of the year the pope, Gregory IX.,

excommunicated Frederick and his son; and a crusade against them was soon after preached. This beating of the "drum ecclesiastic," however, did not scare them from their purpose. In 1241 Enzo was entrusted with the command of the fleet, and in this post he added to his already high reputation by a victory over the Genoese. The pope having convoked a council at Rome, the prelates were flocking to it in large numbers, in defiance of the emperor's remonstrances and commands. They were conveyed on board a number of Genoese galleys; and this fleet Enzo, in conjunction with the Pisans, encountered and defeated near Meloria (May 3). Three vessels were sunk and nineteen captured. Among the captives were three cardinal-legates, and many bishops and arch-bishops. The booty taken was immense, and included the vast sums of money which the notorious Cardinal Otho had just collected in England. The prelates were all taken to Naples, and were kept in close confinement, bound with silver chains in mockery. After the death of the pope (August) Enzo was sent with a large army to aid his brother Conrad, king of the Romans, against the invading Tartar hosts. By the victory won by the two brothers of the House of Hohenstauffen, near the Delphos, an affluent of the Danube, Europe and Christendom were finally delivered from the presence of these desolating hordes. Enzo was afterward sent into Lombardy, which was for several years the scene of his chief exploits. In 1245 he was excommunicated with the emperor by Pope Innocent IV. Two years later he besieged Parma, but was compelled to retire. He soon after besieged Colonna. In 1249 he took the castle of Arola, and on this occasion he sullied his fair fame by putting to death more than a hundred Guelfs of Reggio who were taken prisoners there. At the head of the Modenese, Enzo encountered the troops of Bologna, May 26, 1249, at Fossalta, and was wounded and taken prisoner. He was consigned to perpetual imprisonment, and nothing could move his captors to abate a jot of their rigor. On one occasion he nearly succeeded in making his escape concealed in a cask, but was recognized by his golden hair. "A captive at the age of twenty-four," says Dean Milman, "this youth, of beauty equal to his bravery—the poet, the musician, as well as the most valiant soldier and consummate captain—pined out twenty-three years of life, if not in a squalid dungeon, in miserable inactivity." Enzo was passionately loved by Lucia Biadagioli, a high-born maiden of Bologna, who was given to him as a companion; and she made several unsuccessful attempts to restore him to freedom. He was the best-beloved son of the emperor, who would have given any sum for his ransom, and to whom the loss of him was a lifelong affliction. Nor was he less idolized by his followers for his brave, honorable, and generous character as a leader in war. Enzo died in confinement at Bologna, March 14, 1272.

EON DE BEAUMONT, CHARLES GENEVIÈRE LOUISE AUGUSTE ANDRÉ TIMOTHÉE D', commonly known as the Chevalier d'Eon, a political adventurer, was born at Tonderre, in Burgundy, on October 5, 1728.

In 1759 he served with the French army on the Rhine as aide-de-camp to the Marshal de Broglie, and was wounded during the campaign. In 1762, on the return of the Duc de Nivernais, Eon, who had been secretary to his embassy, was appointed his successor, first as resident agent and then as minister plenipotentiary at the court of Great Britain. He had not been long in this position when he lost the favor of his sovereign, chiefly, according to his own account, through the adverse influence of Madame de Pompadour, who was jealous of him as a secret correspondent of the king.

Superseded by Count Guérchy, Eon showed his irritation by denying the genuineness of the letter of appointment, and by raising an action against Guérchy for an attempt to poison him. Guérchy, on the other hand, had previously commenced an action against Eon for libel, founded on the publication by the latter of certain state documents of which he had possession in his official capacity. Both parties succeeded in so far as a true bill was found against Guérchy for the attempt to murder, though by pleading his privilege as ambassador he escaped a trial, and Eon was found guilty of the libel. Failing to come up for judgment when called on, he was outlawed. For some years afterward he lived in obscurity, appearing in public chiefly at fencing matches. During this period rumors as to the sex of Eon, originating probably in the story of his first residence at St. Petersburg, as a female, began to excite public interest. Bets were frequently laid on the subject, and an action raised before Lord Mansfield in 1777 for the recovery of one of these bets brought the question to a judicial decision, by which Eon was declared a female. A month after the trial he returned to France, having received permission to do so as the result of negotiations in which Beaumarchais was employed as agent. The conditions were that he was to deliver up certain state documents in his possession, and to wear the dress of a female. The reason for the latter of these stipulations has never been clearly explained, but he complied with it to the close of his life. In 1784 he received permission to visit London for the purpose of bringing back his library and other property. He did not, however, return to France, though after the Revolution he sent a letter, using the name of Madame d'Eon, in which he offered to serve in the republican army. He died in London, May 22, 1810. During the closing years of his life he is said to have enjoyed a small pension from George III. A post-mortem examination of the body conclusively established the fact that Eon was a man.

EÖTVÖS, JÓZSEF, BARON, a distinguished Hungarian statesman, author, poet, and orator, was born at Buda, on September 3, 1813. As early as 1830, Eötvös commenced his literary career by a translation of Goethe's *Goetz von Berlichingen*, followed shortly afterward by two original comedies and a tragedy *Bossú (Revenge)*, which showed a singular beauty of style. In 1833, after having passed the requisite examinations at Pozsony (Pressburg), he began at the early age of twenty his official career as a vice-notary, which position he held for two years. He then went to Vienna, where he was employed at the Hungarian Chancellory; here, however, he only remained for a short time. In 1836 he commenced a long journey with the object of visiting the chief towns of Germany, Holland, France, and England, and did not return to Hungary before 1837. Shortly after this he was appointed to a seat in the district court of justice at Eperies, which office he soon resigned, withdrawing to his grandfather's estate at Sályi, where for some time he devoted himself to literary studies. His dramatic works had meanwhile attracted the attention of the Kisfaludy Society, of which learned body he was elected a member in the year 1835. But he reached the zenith of his fame as an author in the year 1838, when his novel *Karthausi (The Carthusian)* appeared in the celebrated *Arvirkönyv (Inundation-Book)*, of which he was himself the editor, and which was published between 1838 and 1841 at Pesth, for the benefit of the sufferers from the floods which devastated that city in 1838. The articles comprised in this work, which extended to five volumes, were contributed by various distinguished literary men, amongst whom Eötvös, as having written the longest and most important article,

occupies a conspicuous place. In recognition of his literary merit he was in 1839 elected a member of the Hungarian Academy of Sciences. In the year 1840, Eötvös, having removed from Sályi to Buda, took his seat in the Upper House of the Hungarian Diet, and identified himself with the advanced political movement of that period, aiding his eloquence by his writings.

Upon the formation of the first responsible Hungarian ministry on March 15, 1848, Baron Eötvös received the portfolio of minister of public instruction; but on September 28th he was obliged to relinquish that post, in consequence of the assassination of Lamberg, the Austrian governor of Hungary. He then proceeded to Vienna, and subsequently to Munich, returning to Pesth in 1851. Soon after his return he published an important political treatise, both in Hungarian and German, entitled *A XIX. század uralkodó eszméinek befolyása az álladalomra (The Influence of the Ruling Ideas of the 19th Century on the State)*. By this work, and others of a similar tendency, he was instrumental in preparing the popular mind for those constitutional changes which were afterward so beneficially introduced; and when, in 1867, the second Hungarian ministry was called into existence, Eötvös was again intrusted with the portfolio of minister of public instruction. Already in the year 1855 he had been elected vice-president of the Hungarian Academy of Sciences, and in 1866 he attained the high honor of president. He died on February 2, 1871, after a few weeks' illness, in the fifty-eighth year of his age.

EPAMINONDAS, the most celebrated general of Thebes, born toward the close of the fifth century B.C., was the son of Polymnis, and belonged to a noble family. Brought up in poverty, he was diligent in acquiring the culture of the age, and became skillful in gymnastic exercises and in playing the flute. For his intellectual education he was chiefly indebted to Lysis of Tarentum, a Pythagorean exile. According to the account given by Plutarch, he served on the Spartan side at the battle of Mantinea in 385 B.C. along with Pelopidas, who having fallen apparently mortally wounded during the engagement, was protected by Epaminondas at the risk of his life. Some have supposed this incident to have been the origin of a friendship which is one of the most honorable and enduring in ancient Greek history. Epaminondas was almost past his prime before he took any prominent part in public affairs. He refused at first to coöperate in the revolution of 379 B.C., of which his friend Pelopidas was one of the leaders, owing to Pythagorean scruples as to the possible shedding of innocent blood. But his desire to be freed from the Spartan yoke was as keen as that of any of his fellow citizens, and after the blow was struck he did his utmost to stir up the Theban youth to maintain their independence. In 371 B.C. Epaminondas was one of the chief representatives of Thebes at the conference at Sparta where the Athenians sought to arrange a peace. He claimed the right to sign the treaty for Boeotia, thus asserting the supremacy of Thebes over the Boeotian cities. The claim was not recognized by the representatives of the other states, and as Epaminondas insisted on it, Thebes was excluded from the treaty altogether. A Spartan invasion of Boeotia under Cleombrotus immediately followed the rupture of negotiations.

With an army not one-half the strength of that opposed to it, Epaminondas inflicted a crushing defeat upon the invaders in the celebrated battle of Leuctra (371). He immediately set himself to consolidate the position of Thebes by forming alliances and by weakening Sparta. With the latter object in view, he supported the founding of Megalopolis and the organiza-

tion of Arcadia as an independent government. In 369 he entered the Peloponnesus, and took another important step toward the weakening of Sparta by establishing the Messenians in their own country, and founding the city of Messene on Mount Ithome. On their return home Epaminondas and Pelopidas were accused of having retained their command beyond the legal period. Though there was no doubt that they had broken the letter of the law, Epaminondas made a spirited defense, which secured the acquittal of both. In the spring of 368 Epaminondas was again in the Peloponnesus, and detached Sicyon and Pellene from the Lacedæmonian alliance. On his return, however, he was repulsed by Chabrias in an attack which he made upon Corinth. Later in the same year he took part in the unsuccessful expedition sent to Thessaly to deliver Pelopidas from Alexander of Phæræ, though he did not hold a command, having been degraded owing to an impression that he had not been sufficiently active against Sparta in the previous campaign. In the next year (367) he was sent at the head of an army into Thessaly, and succeeded in freeing Pelopidas without requiring to give battle. Meanwhile the relation of the Arcadians with Thebes had been growing unfriendly, and all the efforts of Epaminondas could not prevent them from forming an alliance with Athens. Matters were brought to a crisis in 363, when the Theban governor of Tegea arrested the representatives of Arcadia, who had met there to conclude a peace with Elis. Though the prisoners were released in a short time, and an apology made for their arrest, the Arcadians demanded the punishment of the governor. Epaminondas replied that the mistake lay not in the arrest but in the release, and that he would come shortly and reduce the Arcadians to reason. Accordingly, in 360, he invaded the Peloponnesus for the fourth time. A pitched battle was fought at Mantinea, in which the Thebans were victorious, but Epaminondas was mortally wounded. He was carried out of the throng, and being told that he would die as soon as the javelin was withdrawn from the wound, he did not allow this to be done until he had heard that his army was victorious, and that his shield was safe. A column was erected over his grave, which was made on the spot where he fell.

ÉPÉE, CHARLES-MICHEL, ABBÉ DE L' (1712-1789), celebrated for his labors in behalf of the deaf and dumb, was born at Paris, November 25, 1712, being the son of the king's architect. He studied for the church, but having declined to sign a religious formula opposed to the doctrines of the Jansenists, he was denied ordination by the bishop of his diocese. He then devoted himself to the study of law; but about the time of his admission to the bar of Paris, the bishop of Troyes granted him ordination, and offered him a canonry in his cathedral. The bishop died soon after, and the abbé, coming to Paris, was, on account of his relations with Soanen, the famous Jansenist, deprived of his ecclesiastical functions by the archbishop of Beaumont.

EPERIES, or PRESOVA, in Hungarian EPERJES, a royal free town of Hungary, capital of the vármegye or county of Sáros, and situated on the left bank of the River Tarcza, an affluent of the Theiss, 143 miles north-east of Pesth.

EPERNAY (the ancient *Aqua Perennis*), the chief town of a French arrondissement in the department of the Marne, is situated on the left bank of the Marne, at the extremity of a beautiful and fertile valley on the line of railway between Paris and Strasburg, twenty miles west-northwest of Chalons, and seventy-five miles east of Paris.

EPHEMERIDÆ, a remarkable family of Pseudo-Neuropterous Insecta. In some species it is possible

that they have scarcely more than one day's existence, but others are far more longer lived, though the extreme limit is probably rarely more than a week. The family has very sharply defined characters, which separate its members at once from all other neuropterous (or pseudo-neuropterous) groups.

EPHESIANS, THE EPISTLE OF THE. The first and most important inquiry connected with the epistle to the Ephesians has reference to the persons to whom it was originally addressed; and this inquiry again depends so much upon the reading of the first verse of the epistle that, before proceeding further, it is necessary to determine as far as possible what that reading is. In the Authorized Version the epistle opens with the words, "Paul, an apostle of Jesus Christ by the will of God, to the saints which are at Ephesus, and to the faithful in Jesus Christ." "At Ephesus" is the expression in dispute. The two words are omitted by the first hand of the Vatican and Sinaitic MSS., and by the second hand of 67, a cursive MS. of the twelfth century, whose corrected text Griesbach considered much more valuable than the text as it originally stood; but they are found in all other MSS. and versions.

EPHESUS, a very ancient city on the west coast of Asia Minor. It was situated on some hills which rose out of a fertile plain near the mouth of the river Cayster, while the temple and precincts of Artemis or Diana, to the fame of which the town owed much of its celebrity, were in the plain itself, at the distance of about a mile. The situation of the city was such as at all times to command a great commerce. Of the three great river basins of western Asia Minor, those of the Hermus, Cayster, and Meander, it commanded the second, and had ready access by easy passes to the other two, besides being the natural port and landing-place for Sardes, the capital of the Lydian kings.

The earliest inhabitants assigned to Ephesus are the mythical Amazons, who are said to have founded the city, and to have been the first priestesses of the Asiatic Artemis. With the Amazons we hear of Leleges and Pelasgi as in possession. In the eleventh century B.C., according to tradition, Androclus, son of the Athenian king, Codrus, landed on the spot with his Ionians, and from this conquest dates the history of the Greek Ephesus. But here the Ionians by no means succeeded in absorbing the races in possession or superseding the established worship. Their city was firmly established on Coressus and Prion, between which hills lies the city harbor; but the old inhabitants still clustered in the plain around the sanctuary of Artemis. When, however, we call the deity of Ephesus Artemis, we must guard against misconception. Really she was a primitive Asiatic goddess of nature of the same class as Mylitta and Cybele, the mother of vegetation and the nurse of wild beasts, an embodiment of the fertility and productive power of the earth. She was represented in art as a stiff, erect mummy, her bosom covered with many breasts, in which latter circumstance Guhl sees allusion to the abundance of springs which arise in the Ephesian plain. The organization of her worship, too, of which more below, was totally unlike anything Hellenic. It was only by reason of their preconceived ideas that the Ionians found in this outlandish and primitive being a form of Artemis, their conductor. The entire history of Ephesus consists of a long series of struggles between Greek and Asiatic manners and religions, between the ideas of the agora and the harbor and those of the precincts of the goddess. This struggle can be traced throughout in the devices of the Ephesian coin, the type of the goddess which appears in it becoming at times Asiatic, at times Hellenic, according to the predominant influence of the period.

For centuries after the foundation of Androclus, the Asiatic influences waxed and the Greek waned. Twice in the period 700-500 B.C., the city owed its preservation to the interference of the goddess—once when the swarms of the Cimmerians overran Asia Minor, and once when Croesus besieged the town, and only retired after it had solemnly dedicated itself to Artemis, the sign of such dedication being the stretching of a rope from city to sanctuary. Croesus was eager in every way to propitiate the goddess, and as at this time her first great temple was building on the plans of the architect Chersiphron, he presented most of the columns required for the building as well as some cows of gold. It is probable that policy mingled with his piety, his object being to make Ephesus Asiatic in character, a harmonious part of the empire he was forming in Hither Asia, and then to use the city as a port, and by such means counterbalance the growing power of Miletus and other cities of the coast. The mother city of Ephesus, Athens, seems to have counterworked his projects by dispatching one of her noblest citizens, Aristarchus, to restore law on the basis of the Solonian constitution. The labors of Aristarchus seem to have borne fruit. It was an Ephesian follower of his, Hermodorus, who aided the Decemviri at Rome in their compilation of a system of law. And in the same generation Heraclitus, probably a descendant of Codrus, quitted his hereditary magistracy in order to devote himself to philosophy, in which his name became almost as great as that of any Greek. Poetry had long flourished at Ephesus. From very early times the Homeric poems had found a home and many admirers there; and to Ephesus belong the earliest elegiac poems of Greece, the war songs of Callinus, who flourished in the seventh century B.C., and was the model of Tyrtaeus. And yet that on the whole Croesus was successful in his schemes seems certain. When the Ionian revolt against Persia broke out in the year 500 B.C., under the lead of Miletus, Ephesus remained submissive to Persian rule; and when Xerxes returned from the march against Greece, he honored the temple of Artemis, and even left his children behind at Ephesus for safety's sake. After the great Persian defeat, Ephesus for a time paid tribute to Athens, with the other cities of the coast, and Lyander first and afterward Agesilaus made it their headquarters.

In the year 356 B.C., on the same night on which Alexander the Great was born, an incendiary named Herostratus, wishing only to make his name famous, if even by a monstrous crime, set fire to that temple of Artemis which Chersiphron had planned, and which had been later enlarged or even rebuilt by Pæonius in the fifth century. With the greatest eagerness the Ephesians set about its reconstruction on a still more splendid scale. The ladies of the city sold their jewelry, and neighboring cities sent contributions, many of the massive columns being the gift of kings. Though Alexander the Great, after his victories, offered to pay the whole cost of reconstruction, on condition that he might inscribe his name as dedicator on the pediment, his offer was refused. The temple was rapidly completed, and was considered in after times the most perfect model of Ionic architecture, and one of the seven wonders of the world. The architect employed was Dinocrates, and Scopas was one of the sculptors employed in the decoration.

Alexander established a democratic government at Ephesus. Soon after his death the city fell into the hands of Lysimachus, who determined to impress upon the city a more Hellenic character, and to destroy the ancient barbarising influences. To this end he compelled, it is said by means of an artificial inundation,

the people who dwelt in the plain by the temple to migrate to the Greek quarter on the hill now identified as Coressus, which he surrounded by a solid wall. He recruited the numbers of the inhabitants by transferring thither the people of Lebedus and Colophon, and finally, in order to make the breach with the past complete, renamed the city after his wife Arsinoë. But the former influences soon re-asserted themselves, and with the old name returned Asiatic superstition and Asiatic luxury. The people were again notorious for wealth, for their effeminate manner of life, and for their devotion to sorcery and witchcraft. After the defeat of Antiochus the Great, king of Syria, by the Romans, Ephesus was handed over by the conquerors to Eumenes, king of Pergamus, whose successor, Attalus Philadelphus, worked the city irremediable harm. Thinking that the shallowness of the harbor was due to the width of its mouth, he built a mole part-way across the latter; the result, however, was contrary to his wishes, the silting up of the harbor with sand proceeding now at a greater pace than before. The third Attalus of Pergamus bequeathed Ephesus with the rest of his possessions to the Roman people, when it became the capital of the province of Asia, and the residence of the proconsul. Henceforth Ephesus remained subject to the Romans until the barbarian invasions, save for a short period, when, at the instigation of Mithradates, the cities of Asia Minor revolted, and massacred their Roman residents. The Ephesians even dragged out and slew those Romans who had fled to the precincts of Artemis for protection, notwithstanding which they soon returned from their new to their former masters, and even had the effrontery to state, in an inscription preserved to this day, that their defection to Mithradates was a mere yielding to superior force. Sulla, after his victory over Mithradates, brushed away their pretenses, and after inflicting on them a very heavy fine, told them that the punishment fell far short of their deserts. In the civil wars of the first century B.C., the Ephesians were so unfortunate as twice to support the unsuccessful party, giving shelter to, or being made use of by, first Brutus and Cassius and afterward Antony, for which partisanship or weakness they paid very heavily in fines.

EPHORI. This name, meaning *bishop* or *overseer*, was given to certain magistrates in many Dorian cities of ancient Greece. But the most prominent are the ephors of Sparta, who, whatever may have been their origin, appear during the times of which we have historical knowledge as the supreme power in the state, controlling alike its civil and military administration. When in the third century B.C. the complete humiliation of Sparta led the kings Agis III., and Cleomenes III. to resolve on restoring what they supposed to be the ancient constitution, their first blow was directed at the ephors, whom they charged with deliberate usurpation. According to their version the ephors owed their existence to the Messenian wars, which rendered necessary the prolonged absence of the kings, who accordingly delegated to them their judicial functions; and the subordinate powers thus given were gradually extended until they became virtually absolute. Another tradition ascribed the institution of the ephors to Lycurgus himself. But if of Lycurgus we cannot be said to know anything, the lays of Tyrtaeus, which alone give us any trustworthy information about the Messenian wars, say nothing as to the origin of the ephorality.

EPHORUS, a Greek historian of Cumæ, flourished about 408 B.C. His father's name was Demophilus or Antiochus; and he studied along with Eudoxus and Theopompus under the philosopher Isocrates.

The chief work of Ephorus was a history of the wars between the Greeks and Persians, in which, like Herodotus, he introduced the description of foreign and barbarous nations in the form of episodes. Only a few disconnected fragments of it have come down to us. According to the scheme of Marx, the first book contained an account of the return of the Heraclidae into the Peloponnesus, and the change of affairs consequent upon that event; the second was occupied with the state of the rest of Greece; and the third narrated the departure of the Greek colonies to Asia.

EPHRAEM SYRUS, or Ephraim the Syrian, flourished in the fourth century of the Christian era, acquired great renown among his contemporaries, and has since been esteemed one of the most celebrated fathers of the Church. So highly was he honored that, according to the testimony of Jerome, his homilies were read in many of the churches of Greece immediately after the reading of Scripture.

EPHRAIM, the younger son of Joseph, who received the precedence over the elder (Manasseh) by the blessing of Jacob, on the occasion when he adopted both into the number of his sons in place of Joseph their father.

EPICHRMUS (540-450 B.C.), a celebrated poet of the old comedy, was born in the Island of Cos, where his father Elotales was a physician, of the race of the Asclepiads.

EPICTETUS (the word means "acquired") was, according to the received account, born at Hierapolis, a town in the southwest quarter of Phrygia. His life extends between a date slightly anterior and a date slightly posterior to the second half of the first century A.D. While young, he was one of the slaves of Epaphroditus, a freedman and courtier of the Emperor Nero; and while in that position, he managed to attend the lectures of Musonius Rufus, an important and esteemed teacher of the Stoical system during the reigns of Nero and Vespasian. Epictetus was lame—whether from birth or in consequence of an accident or of his owner's cruelty is unknown; he was also of weakly health. That he was a free man in the later part of his life is evident, but the means by which his liberty was obtained are unrecorded. In the days of Domitian he was one of the recognized votaries and perhaps professors of philosophy; and in the year 90, when that emperor, irritated by the support and encouragement which the opposition to his tyranny found among the adherents of Stoicism, issued an edict to all philosophers to quit Rome, Epictetus was among those who withdrew into the provinces. For the rest of his life he settled at Nicopolis, a town of southern Epirus, not far from the scene of the battle of Actium.

The philosophy of Epictetus is stamped with an intensely practical character, and exhibits a high idealistic type of morality. He is an earnest, sometimes stern and sometimes pathetic preacher of righteousness, who despises the mere graces of a literary and rhetorical lecturer and the subtleties of an abstruse logic. He has no patience with mere antiquarian study of the Stoical writers. The problem of how life is to be carried out well is the one question which throws all other inquiries into the shade. "When you enter the school of the philosopher, ye enter the room of a surgeon; and as ye are not whole when ye come in, ye cannot leave it with a smile, but with pain." True education lies in learning to wish things to be as they actually are; it lies in learning to distinguish what is our own from what does not belong to us. But there is only one thing which is fully our own—that is, our will or purpose. God, acting as a god king and a true father, has given us a will which cannot be restrained, compelled, or thwarted; he

has put it wholly in our own power, so that even He Himself has no power to check or control it. Nothing external, neither death nor exile nor pain nor any such thing, is ever the cause of our acting or not acting; the sole true cause lies in our opinions and judgments.

EPICURUS, the founder of the Epicurean school of philosophy, was born in the end of 342, or the beginning of 341 B.C., seven years after the death of Plato. His father, Neocles, belonged to Gargettos, one of the small villages of Attica, but had settled in Samos, not later than 352, as one of the colonists sent out by the Athenian state after the conquest of the island by Timotheus in 366. In Samos, and also at Teos, Epicurus passed the early years of his life, probably assisting his father, who was a common schoolmaster, possibly, too, assisting his mother, Archestrata, in the practice of her witchcraft—if we may believe doubtful tales. At the age of eighteen he went to Athens, where the Platonic school was flourishing under the lead of Xenocrates, and which Aristotle had recently quitted for Chalcis to avoid an indictment for impiety. This visit to Athens, however, was a short one, for in the next year (322), Antipater, the Macedonian, punished the Athenians for their incipient revolt by banishing about 12,000 of the poorer citizens to distant shores. It was in connection with this event that Epicurus joined his father, who was now located at Colophon. It seems possible that before this time he had listened to some lectures from Nausiphanes, a Democritean philosopher—perhaps also from others—but there is little reason to suppose that he was much better than a petty teacher like his father. The first awakening of the philosophic spirit was seen, it is said, when he asked his teacher, as they read together in Hesiod how chaos was the first of all things, "What, then, preceded chaos?" Stimulated further by the perusal of some writings of Democritus, Epicurus began to formulate a doctrine of his own; and at Mitylene and Lampsacus, where he spent several years, he gradually gathered round him several disciples who adopted his views with enthusiasm. In 307, the year in which Demetrius Poliorcetes entered Athens and restored to it at least nominal freedom, Epicurus returned to that city, which had now for a century and a half been the recognized headquarters of Greek philosophy. Half his life was passed; for the remaining thirty-six years he continued at Athens, with the exception of one or two visits to his friends in Ionia.

The scene of his philosophic life and teaching was a garden which he bought at the cost of about £300 (80 minæ). There he passed his days as the loved and venerated head of a remarkable society, such as the ancient world had never seen. Amongst the number were Metrodorus, a bosom-friend of more energetic temperament than Epicurus; during their acquaintance, which lasted till the death of Metrodorus seven years before his friend, they only parted company for the space of six months. Timocrates, a brother of Metrodorus, was another member; so were Polyænus, a fair-minded and studious man, Hermarchus, a son of poor parents, who succeeded Epicurus as chief of the school, Leonteus, and others. Nor were women absent from the philosophic coterie. Themista, the wife of Leonteus, was a friend and correspondent of Epicurus; Idomeneus, another member, had married a sister of Metrodorus; and Metrodorus himself had as his consort Leontion, once a hetæra in Athens, but now the mother of a boy and girl, for whose welfare Epicurus made special provision in his will. That these were not the only ladies in the society is possible enough, and it is possible that the relations between the sexes—in this prototype of Rabelais' Abbey of Thélème—were not entirely what is termed Platonic. But there is, on the other hand,

scarcely a doubt that the tales of licentiousness which ill-tempered opponents circulated regarding the society of the garden are groundless.

The mode of life in his community was plain. The general drink was water, and the food barley bread; half a pint of wine was held an ample allowance. "Send me," says Epicurus to a correspondent, "send me some Cythnian cheese, so that, should I choose, I may fare sumptuously." But though they lived together, Epicurus would not let his friends throw all their property into the common stock; that he remarked, would imply distrust of their own and others' good resolutions. The company was held in unity by the siren-like charms of his personality, and by the free sociality which he inculcated and exemplified. Though he seems to have had a warm affection for his countrymen, it was as human beings brought into contact with him, and not as members of a political body, that he preferred to regard them. He never entered public life. His kindness extended even to his slaves, one of whom, named Mouse, was a brother in philosophy. He died of stone in 270 B.C.

Epicurus was a voluminous writer — the author, it is said, of about 300 works.

The Epicurean philosophy is traditionally divided into the three branches of logic, physic, and ethics. But it is only as a basis of facts and principles for his theory of life that logical and physical inquiries find place at all.

To the Epicureans the elaborate logic of the Stoics was a superfluity. In place of logic we find canonic, the theory of the tests of truth and reality. The only ultimate canon of reality is sensation and feeling; whatever we feel, whatever we perceive by any sense, that we know on the most certain evidence we can have to be real, and in proportion as our feeling is clear, distinct and vivid, in that proportion are we sure of the reality of its object. The truth of anything is measured by its vivid and effective presence in consciousness.

EPIDAMNUS, an ancient city of Illyricum, was founded by a joint colony of Corcyreans and Corinthians toward the close of the seventh century B.C., and from its admirable position and the fertility of the surrounding country soon rose into very considerable importance.

EPIDURUS, a maritime city of ancient Greece, on the eastern coast of Argolis, sometimes distinguished as Epidaurus the Holy. It stood on a small rocky peninsula with a natural harbor on the northern side and an open but serviceable bay on the southern; and from this position acquired the epithet of the two-mouthed. Its narrow but fertile territory consisted of a plain shut in on all sides except toward the sea by considerable elevations, among which the most remarkable were Mount Arachnæon (the modern Arna) and Titthion. The continuous states were Corinth, Argos, Trœzen, and Hermione. Its proximity to Athens and the islands of the Saronic Gulf, the commercial advantages of its position, and the fame of its Temple of Æsculapius combined to make Epidaurus a place of no small importance.

EPIDAUROS, a city of the Peloponnesus on the east coast of Laconia, distinguished by the epithet of Limera, which is explained as either the Well-havened or the Hungry.

A third Epidaurus was situated in Illyricum, on the site of the present Vecchia Ragusa; but it is not mentioned till the time of the civil wars of Pompey and Cæsar, and has no special interest.

EPIGONI, a Greek word denoting simply *sons or descendants*, but applied more particularly to certain mythical chiefs who fought against Thebes. After the

terrible catastrophe which brought about the death of Iokaste (Jocasta) and the blinding of Œdipus, Eteocles and Polynices, the sons of this ill-fated pair, incurred the wrath of their father, whom they cast out from his home to fight with poverty as well as blindness. The curse of the aged king worked in the dissensions of the two brothers; and Polynices, driven into exile, made his way to Argos, where Adrastus took up his cause. The result was the enterprise which Attic tradition spoke of as the expedition of the Seven Argive Chiefs against Thebes, but which, according to the poets of the Thebais, involved as large a gathering as that of the chieftains who assembled to hunt the Calydonian boar or to recover the Golden Fleece. This strife was fatal, as the prophecies of Melampus had declared it must be, to all the chiefs engaged in it with the exception of Adrastus, the seer Amphiaraus being saved from death only by the opening of the earth, which received him alive with his chariot into her bosom. Thus ended the first assault of the Argives against Thebes, an assault which answers closely to the first ineffectual attempts of the Heraclids to recover their paternal inheritance in the Peloponnesus.

EPIGRAMS. Nothing perhaps could be more hopeless than an attempt to discover or devise a definition wide enough to include the vast multitude of little poems which at one time or other have been honored with the title of epigram, and precise enough to exclude all others. Without taking account of its evident misapplications, we find that the name has been given — first, in strict accordance with its Greek etymology from *ἐπιγράφειν* to inscribe, to any actual inscription on monument, statue, or building; secondly, to verses never intended for such a purpose, but assuming for artistic reasons the epigraphical form; thirdly, to verses expressing with something of the terseness of an inscription a striking or beautiful thought; and fourthly, by unwarrantable restriction, to a little poem ending in a "point," especially of the satirical kind.

Of the epigram as cultivated by the Greeks, a detailed account has been given in the article on the ANTHOLOGIES, those wonderful collections which did fair to remain the richest of their kind. The delicacy and simplicity of so much of what has been preserved is perhaps their most striking feature; and one cannot but be surprised at the number of poets proved capable of such work. In Latin literature, on the other hand, the epigrammatists are comparatively few, and though several of them, as Catullus and Martial, are men of high literary genius, too much of what they have left behind is vitiated by brutality and obscenity. On the subsequent history of the epigram, indeed, Martial has exercised an influence as baneful as it is extensive, and he may fairly be counted the far-off progenitor of a host of scurrilous verses which he himself would almost have blushed to write. Nearly all the learned Latinists of the sixteenth and seventeenth centuries may claim admittance into the list of epigrammatists — Bembo and Scaliger, Buchanan and More, Stroza and Sannazarus. Melancthon, who succeeded in combining so much of Pagan culture with his Reformation Christianity, has left us some graceful specimens, but his editor, Joannes Major Joachimus, has so little idea of what an epigram is, that he includes in his collection some translations from the Psalms. John Owen, or, as he Latinized his name, Johannes Audoenus, a Cambro-Briton, attained quite an unusual celebrity in this department, and is regularly distinguished as Owen the Epigrammatist. The tradition of the Latin epigram has been kept alive in England by such men as Porson, Vincent Bourne, and Walter Savage Landor; and at one at least of our universities there is an annual prize for the best original

specimen. Happily there is now little danger of any too personal epigrammatist suffering the fate of Niccolo Franco, who paid the forfeit of his life for having launched his venomous Latin against Pius V., though he may still incur the milder penalty of having his name inserted in the *Index Expurgatorius*, and find, like John Owen, that he consequently has lost an inheritance.

In English literature proper there is no writer like Martial in Latin or Logau in German, whose fame is entirely due to his epigrams; but several even of those whose names can perish never have not disdained this diminutive form. The designation epigram, however, is used by our earlier writers with excessive laxity, and given or withheld without apparent reason.

The French are undoubtedly the most successful cultivators of the "salt" and the "vinegar" epigram; and from the time of Marot downward many of their principal authors have earned no small celebrity in this department. It is enough to mention the names of J. B. Rousseau, Lebrun, Voltaire, Marmontel, Piron, and Chénier. In spite of Rapin's dictum that a man ought to be content if he succeeded in writing one really good epigram, those of Lebrun alone number upward of 600, and a very fair proportion of them would doubtless pass muster even with Rapin himself. If Piron was never anything better, "pas même un académicien," he appears at least in Grimm's phrase to have been "une machine à saillies, à épigrammes, et à bon-mots." Perhaps more than anywhere else the epigram has been recognized in France as a regular weapon in literary and political contests, and it might not be altogether a hopeless task to compile an epigrammatical history from the Revolution to the present time.

While any fair collection of German epigrams will furnish examples that for keenness of wit would be quite in place in a French anthology, the Teutonic tendency to the moral and didactic has given rise to a class but sparingly represented in French.

EPILEPSY, synonym, *Falling Sickness*. The term as generally understood is applied to a nervous disorder characterized by a fit of sudden loss of consciousness, attended with convulsions. There may, however, exist manifestations of epilepsy much less marked than this, yet equally characteristic of the disease; while, on the other hand, it is to be borne in mind that many other attacks of a convulsive nature have the term "epileptic" or "epileptiform" applied to them quite erroneously, as they can in no strictly scientific sense be held to be epileptic.

Epilepsy was well known in ancient times, and was regarded as a special infliction of the gods, hence the names *morbus sacer*, *morbus divus*. It was also termed *morbus Hercules*, from Hercules having been supposed to have been epileptic, and *morbus comitialis*, from the circumstance that when any member of the forum was seized with an epileptic fit the assembly was broken up. *Morbus caducus*, *morbus lunaticus astralis*, *morbus demoniacus*, *morbus major*, were all terms employed to designate epilepsy.

The forms which this disease manifests have been differently described by different writers, but there are two well-marked varieties of the epileptic seizure, either of which may exist alone, or both may be found to occur together in the same individual. To these the terms *epilepsia gravior* and *epilepsia mitior*, *le grand mal* and *le petit mal*, are usually applied. The former of these, if not the more common, is at least that which attracts most attention, being what is generally known as an epileptic fit.

EPIMENIDES, a poet and prophet of Crete, was born at Phæstus, or, according to others, at Gnosus, in the seventh century before the Christian era. In the

account of his life as given by Diogenes Laertius (i, 12), it is impossible to distinguish between what may be true and what is obviously fabulous. When keeping his father's sheep one day, he is said to have retired into a cave, where he fell into a profound sleep which lasted fifty-seven years. Returning home to the altered abodes of his family, he was hailed as the especial favorite of the gods, and venerated as the possessor of superhuman wisdom. He was invited by Solon to Athens (about 596 B.C.), in order to give the sanction of his sacred presence to the purification of the city previous to the promulgation of the political code of the great lawgiver. Having accomplished the desired lustration by the performance of certain religious rites, Epimenides was loaded by the Athenians with wealth and honors. He refused, however, to accept their gifts, contenting himself with a branch of the sacred olive, and the exaction of a promise of perpetual friendship between Athens and Gnosus. The death of Epimenides is said to have taken place in Crete, although Sparta boasted of possessing his tomb, and doubtless he may have traveled into many different countries, if (as one tradition runs) he attained the age of nearly 300 years.

ÉPINAY, a town of France, capital of the department of Vosges, is situated on both sides of the Moselle, at the foot of the Vosges chain of mountains, and on the railway from Nancy to Belfort, thirty-five miles south-southeast of Nancy and 200 east-southeast of Paris.

ÉPINAY, LOUISE FLORENCE PÉTRONILLE DE LA LIVE D', a French authoress, well known on account of her *liaisons* with Rousseau and Baron von Grimm, and her acquaintanceship with Diderot, D'Alembert, D'Holbach, and other French *littérateurs*, was born at Paris in 1725. Her father, Tardieu d'Esclavelles, a brigadier of infantry, was killed in battle when she was nineteen years of age; and in recognition of his services the Government arranged that she should marry her cousin, De La Live d'Épinay, on whom they bestowed the office of farmer-general. The marriage was an unhappy one; and, according to her own version of the matter, she believed that the prodigality, dissipation, and infidelities of her husband justified her in regarding herself as freed from all the obligations implied in the conjugal bond. Conceiving a strong attachment for J. J. Rousseau, she, in 1756, built for him, in the valley of Montmorency, a cottage which she named the "Hermitage;" and there, notwithstanding the pleasantries and gay remonstrances of his friends at his forsaking the brilliant society of Paris, he sought for a time to enjoy the quiet and natural rural pleasures for which he always expressed a strong preference. Rousseau, in his *Confessions*, affirmed that the attachment was all on her side; but as, after her *liaison* with Grimm, he became her bitter enemy and detractor, not much weight can be given to his statements on this point. In Grimm's absence from France (1775-76), Madame d'Épinay continued, under the superintendence of Diderot, the correspondence he had begun with various European sovereigns. She spent the whole of her after life at the "Hermitage," enjoying the society of a small circle of *littérateurs*, and occupying her spare time chiefly in various kinds of literary composition. She died April 17, 1783.

EPIPHANIUS, ST., a celebrated father of the church, was born in the beginning of the fourth century at Bezanduca, a village of Palestine, near Eleutheropolis. He is said to have been of Jewish extraction. In his youth he resided in Egypt, where, under the Gnostics, he began an ascetic course of life; and on his return to Palestine he became a zealous disciple of the Patriarch Hilarion, and eventually the president of a monastery which he founded near his native place. In 367 he was

nominated Bishop of Constantia, previously known as Salamis, the metropolis of Cyprus—an office which he held till his death in 402. Zealous for the truth, but passionate, bigoted, and ignorant, he devoted himself to furthering the spread of the recently established monasticism, and to the confutation of heresy, of which he regarded Origen and his followers as the chief representatives. The first of the Origenists that he attacked was John, Bishop of Jerusalem, whom he denounced from his own pulpit at Jerusalem in terms so violent that the bishop sent his archdeacon to request him to desist; and afterward, instigated by Theophilus, Bishop of Alexandria, he proceeded so far as to summon a council of Cyprian Bishops to condemn the errors of Origen. His next blow was aimed at Chrysostom, the Patriarch of Constantinople, and a pretext was found in the shelter which he had given to four Nitrian monks whom Theophilus had expelled on the charge of Origenism. Finding himself baffled by the authority of Chrysostom, Epiphanius proceeded in extreme old age to Constantinople, and endeavored to subvert his influence at the court; but having presumptuously announced to the Empress Eudoxia that her son, who was then ill, would die unless she ceased to favor the friends of Origen, he was immediately dismissed, and died on the passage home to Cyprus. At his parting interview with Chrysostom, he is said to have expressed the hope that that patriarch "would not die a bishop;" and Chrysostom, in retaliation, uttered a wish that "he would never get back in safety to his own country." As both these malevolent wishes were literally accomplished, there is reason to suppose that the story may have been fabricated after the event.

EPIPHANY, FESTIVAL OF, one of the chief festivals of the Christian Church, kept on January 6th, as the closing day of the Christmas commemoration, the English "Twelfth Day."

EPIPHYTES. See BOTANY.

EPIRUS, or EPEIRUS, was that part of Northern Greece which stretched along the Ionian Sea from the Acroceranion promontory on the north to the Ambracian Gulf on the south, and was conterminous on the landward side with Illyria, Macedonia, and Thessaly—thus corresponding to the southern portion of Albania. The name Epirus signified mainland, and was originally applied to the whole coast southward to the Corinthian Gulf, in contradistinction to the neighboring islands, Corcyra, Leucas, etc.

EPISCOPACY. By Episcopacy we understand that form of church organization in which the chief ecclesiastical authority within a defined district or diocese is vested in bishops (*episcopi*), having in subordination to them priests, or presbyters, and deacons, and with the power of ordination. Of this form of government there are traces in apostolic times; evidences of its existence become increasingly frequent in the sub-apostolic period; until when the church emerges from the impenetrable cloud which covers the close of the first and the beginning of the second century, we find every Christian community governed by a chief functionary, uniformly styled its "bishop," with two inferior orders of ministers under them, known as "presbyters" and "deacons." It may be regarded as an established fact that before the middle of the second century diocesan Episcopacy had become the rule in every part of the then Christian world.

EPISCOPIUS, SIMON, a distinguished theologian (whose name in Dutch was Bisschop), was born at Amsterdam on January 1, 1583. In 1600 he entered the university of Leyden, where he took his master of arts degree in 1606. He afterward studied theology under Arminius, and Arminius' opponent Gomarus; but soon

becoming a strong sympathizer with the Arminian doctrines, he, on the death of Arminius in 1609, left Leyden for the university of Franeker. In 1612 he succeeded Gomarus as professor of theology at Leyden, an appointment which awakened the bitter enmity of the Calvinists, and, on account of the influence lent by it to the spread of Arminian opinions, was doubtless an ultimate cause of the meeting of the Synod of Dort in 1618. Episcopius was chosen as the spokesman of the thirteen representatives of the Remonstrants before the synod; but he was refused a hearing, and the Remonstrant doctrines were condemned without any explanation or defense of them being permitted. After the death of the stadtholder Maurice, the violence of the Arminian controversy began to abate, and Episcopius was permitted in 1626 to resume his duties in the Remonstrant church of Rotterdam. He was afterward appointed rector of the Remonstrant college at Amsterdam, where he died in 1643.

EPITAPH (a tomb), means strictly an inscription upon a tomb, though by a natural extension of usage the name is applied to anything written ostensibly for that purpose whether actually inscribed upon a tomb or not. Many of the best known epitaphs, both ancient and modern, are merely literary memorials, and find no place on sepulchral monuments. Sometimes the intention of the writer to have his production placed upon the grave of the person he has commemorated may have been frustrated, sometimes it may never have existed; what he has written is still entitled to be called an epitaph if it be suitable for the purpose, whether the purpose has been carried out or not. The most obvious external condition that suitability for mural inscription imposes is one of rigid limitation as to length. An epitaph cannot in the nature of things extend to the proportions that may be required in an elegy.

The desire to perpetuate the memory of the dead being natural to man, the practice of placing epitaphs upon their graves has been common among all nations and in all ages. And the similarity, amounting sometimes almost to identity, of thought and expression that often exists between epitaphs written more than two thousand years ago and epitaphs written only yesterday is as striking an evidence as literature affords of the close kinship of human nature under the most varying conditions where the same primary elemental feelings are stirred.

Probably the earliest epitaphial inscriptions that have come down to us are those of the ancient Egyptians, written, as their mode of sepulture necessitated, upon the sarcophagi and coffins. Those that have been deciphered are all very much in the same form, commencing with a prayer to a deity, generally Osiris or Anubis, on behalf of the deceased, whose name, descent, and office are usually specified.

Among the gems of the Greek anthology familiar to English readers through translations are the epitaphs upon those who had fallen in battle. There are several ascribed to Simonides on the heroes of Thermopylae, of which the most celebrated is the epigram:

"Go tell the Spartans, thou that passest by,
That here, obedient to their laws, we lie."

In Lacedæmonia epitaphs were inscribed only upon the graves of those who had been especially distinguished in war; in Athens they were applied more indiscriminately. They generally contained the name, the descent, the demise, and some account of the life of the person commemorated. It must be remembered, however, that many of the so-called Greek epitaphs are merely literary memorials not intended for monumental inscription, and that in these freer scope is naturally given to

general reflections, while less attention is paid to biographical details.

Roman epitaphs, in contrast to those of the Greeks, contained, as a rule, nothing beyond a record of facts. The inscriptions on the urns, of which numerous specimens are to be found in the British Museum, present but little variation.

The earliest existing British epitaphs belonged to the Roman period, and are written in Latin after the Roman form. Specimens are to be seen in various antiquarian museums throughout the country; some of the inscriptions are given in Bruce's *Roman Wall*; and the seventh volume of the *Corpus Inscriptionum Latinarum* edited by Hübner, containing the British inscriptions, is the most valuable repository for the earlier Roman epitaphs in Britain. The earliest, of course, are commemorative of soldiers belonging to the legions of occupation, but the Roman form was afterward adopted for native Britons. Long after the Roman form was discarded, the Latin language continued to be used, especially for inscriptions of a more public character, as being from its supposed permanence the most suitable medium of communication to distant ages. It is only, in fact, within recent years that Latin has become unusual, and the more natural practice has been adopted of writing the epitaphs of distinguished men in the language of the country in which they lived. While Latin was the chief if not the sole literary language, it was, as a matter of course, almost exclusively used for epitaphal inscriptions. The comparatively few English epitaphs that remain of the eleventh and twelfth centuries are all in Latin. They are generally confined to a mere statement of the name and rank of the deceased following the words *Hic jacet*.

Epitaphs are sometimes classified according to their authorship and sometimes according to their subject, but neither division is so interesting as that which arranges them according to their characteristic features. What has just been said of English epitaphs is, of course, more true of epitaphs generally. They exemplify every variety of sentiment and taste, from lofty pathos and dignified eulogy to coarse buffoonery and the vilest scurrility. The extent to which the humorous and even the low comic element prevails among them is a noteworthy circumstance. It is curious that the most solemn of all subjects should have been frequently treated, intentionally or unintentionally, in a style so ludicrous that a collection of epitaphs is generally one of the most amusing books that can be picked up. In this as in other cases too it is to be observed that the unintended humor is generally of a much more entertaining kind than that which has been deliberately perpetrated.

EPITHALAMIUM (a nuptial chamber), originally among the Greeks a song which was sung by a number of boys and girls at the door of the nuptial chamber.

EPSOM, a market town in the County of Surrey, is situated about fourteen miles southwest of London, on a branch of the London & Brighton Railway.

EPSOM SALTS, the *magnesia sulphas* of pharmacy, and the epsomite or hair-salt of mineralogical treatises, is an hydrated magnesium sulphate.

EQUATION. Theory of Equations is used in its ordinary conventional sense to denote the theory of a single equation of any order in one unknown quantity; that is, it does not include the theory of a system or systems of equations of any order between any number of unknown quantities. Such systems occur very frequently in analytical geometry and other parts of mathematics, but they are hardly as yet the subject-matter of a distinct theory; and even Elimination, the transition-process for passing from a system of any number of equations involving the same number of unknown quan-

ties to a single equation in one unknown quantity, hardly belongs to the Theory of Equations in the above restricted sense. But there is one case of a system of equations which precedes the Theory of Equations, and indeed presents itself at the outset of algebra, that of a system of simple (or linear) equations. Such a system gives rise to the function called a Determinant, and it is by means of these functions that the solution of the equations is effected. We have thus the subject Determinant as nearly equivalent to (but somewhat more extensive than) that of a system of linear equations; and we have the other subject, Theory of Equations, used in the restricted sense above referred to, and as not including Elimination.

A sketch of the history of Determinants is given under **ALGEBRA**; it thereby appears that the algebraical function called a Determinant presents itself in the solution of a system of simple equations, and we have herein a natural source of the theory.

EQUITES, an order of men in the commonwealth of Rome to which there is no exact parallel in modern times. Their origin goes back to the earliest period of Roman history. During the reign of the kings they appear to have been of noble birth, the younger branches of patrician families. This we may infer from the statement of Polybius, that the knights *now* are chosen according to fortune — evidently intimating that their selection had previously depended on a different principle. Romulus is said to have divided them into three centuries or "hundreds," each century being chosen from one of the three old Roman tribes, the Ramnes, Tities, and Luceres.

In 400 B.C., during the siege of Veii, on account of the want of sufficient cavalry, those who possessed the requisite fortune offered to provide horses at their own expense.

In the later period of the republic the equites increased in power and consequence, and at the same time gradually ceased altogether to be what their name implied, the military service which they had formerly rendered being now obtained from allies and auxiliaries.

Under the empire appears a class of equites distinguished as *singulares Augusti imperatoris*, which has been the subject of much debate. The epithet *singularis* is by some supposed to refer to their possession of a single horse, and by others it is regarded as indicative of their singular rank; but Henzen explains it as equivalent to *particularis*, because they were attached to the service of an individual. They formed a sort of body-guard to the emperor, were stationed in Rome, and only under peculiar circumstances were called to serve outside of the city.

EQUITY in its most general sense means justice; in its most technical sense it means a system of law, or a body of connected legal principles, which have superseded or supplemented the common law on the ground of their intrinsic superiority. Aristotle defines equity as a better sort of justice, which corrects legal justice where the latter errs through being expressed in a universal form and not taking account of particular cases. When the law speaks universally, and something happens which is not according to the common course of events, it is right that the law should be modified in its application to that particular case, as the lawgiver himself would have done, if the case had been present to his mind.

Positive law, at least in progressive societies, is constantly tending to fall behind public opinion, and the expedients adopted for bringing it into harmony therewith are three, viz., legal fictions, equity, and statutory legislation. Equity here is defined to mean "any body of rules existing by the side of the original civil law,

founded on distinct principles, and claiming incidentally to supersede the civil law in virtue of a superior sanctity inherent in those principles." It is thus different from legal fiction, by which a new rule is introduced surreptitiously, and under the pretense that no change has been made in the law, and from statutory legislation, in which the obligatory force of the rule is not supposed to depend upon its intrinsic fitness. The source of Roman equity was the fertile theory of natural law, or the law common to all nations. Even in the Institutes of Justinian the distinction is carefully drawn in the laws of a country between those which are peculiar to itself and those which natural reason appoints for all mankind. The connection in Roman law between the ideas of equity, nature, natural law, and the law common to all nations, and the influence of the stoical philosophy on their development, are fully discussed in the third chapter of the work we have referred to. The agency by which those principles were introduced was the edicts of the prætor, an annual proclamation setting forth the manner in which the magistrate intended to administer the law during his year of office. Each successive prætor adopted the edict of his predecessor, and added new equitable rules of his own, until the further growth of the irregular code was stopped by the Prætor Salvius Julianus in the reign of Hadrian.

ERARD, SÉBASTIEN (1752-1831), a manufacturer of musical instruments, distinguished especially for the improvements he made upon the harp and the pianoforte, was born at Strasburg.

ERASMUS, DESIDERIUS, was born at Rotterdam on the night of October, 27-8, and probably in the year 1466. The inscription on his statue, erected in his native place in 1622, names the year 1467; but the epitaph on his tombstone at Basel makes him sixty-nine at the time of his death in July, 1536, a reckoning which might be compatible with either year, 1466 or 1467. The latter year is excluded by Erasmus' own statements, which, though inconsistent, agree on the whole best with the year 1466.

Both his father and his mother dying young, Erasmus was left to the care of three guardians, who endeavored to force him into a convent. They sent him for three years to a conventual preparatory school at Bois-le-duc (Hertogenbosch), and afterward so far overcame his resistance that he entered upon the novitiate in a house of the regular canons of St. Augustine, at Stein, near Gouda. He made his profession here in 1486, æt. 19; and was afterward ordained priest by the bishop of Utrecht. Erasmus had no vocation for the devotional exercises of convent life, and was disgusted with the society of the monks—coarse, ignorant, and illiterate. His aspiration was to escape to some university where he might study. From the very first, the love of letters was the one ruling motive of his life. An unexpected chance brought him deliverance. Henri de Bergues, bishop of Cambray, took him to be his secretary. With the permission of the prior of Stein, and the consent of the general of the order and of the ordinary, the bishop of Utrecht, Erasmus left the convent. After a short stay with his new patron, the bishop of Cambray, and with funds sparingly supplied by him, Erasmus entered the College of Montaigu in the University of Paris. Of the revolting economy of this college in respect of food and lodging he has left a graphic account in the *Colloquies* (Ichthyophagia): "I carried nothing away from it," he says, "but a body infected with disease, and a plentiful supply of vermin." Rabelais, it will be remembered, has recorded a similar experience.

To eke out his scanty means he took pupils. With one of these, Lord Mountjoy, he came to England in

1497. According to Anthony Wood, he spent three years, 1497 to 1499, in Oxford. Many of the biographers make him return to Paris in 1498; but the chronology of this part of Erasmus' life is confused.

In April, 1506, we find him again in England, first in London, and becoming acquainted with More and Warham, then at Cambridge, performing the exercises for the divinity degree, and commencing B. D. "The Athenæ Cantabrigienses" of Cooper make him take the degree of D. D. at the university, but this is an error. His stay in England was not long, as he found opportunity to carry out a long cherished project of a journey to Italy. Want of funds had hitherto been the obstacle; "I have a longing to visit Italy," he wrote in 1498, "but it is not easy to fly without wings." He was engaged to escort the two sons of Baptista Boyer, physician to Henry VII., as far as Bologna. In September, 1506, he was at Turin, and took the degree of D. D. in that university. He passed the winter of 1506-7, at Bologna, where he was witness of the triumphal entry of Julius II., and where he made acquaintance with Paulus Bombasius and Scipio Carteromachus (Forteguerra). Here he obtained a papal dispensation permitting him to lay aside the dress of his order, though the story of his being mistaken for a plague-doctor in consequence of wearing it is justly dismissed by Drummond as a pleasant fiction. He visited Venice, where he stayed some time, for the purpose of passing through the press of Aldus, a second and greatly enlarged edition of his *Adagia*. Here he was domesticated in the house of Asulanus, and made the acquaintance of the circle of learned men who were clustered round the Aldine press—Marcus Musurus, Meander, Baptista Egnatius, etc.

In 1508 he removed to Padua, where he spent the winter as tutor to Alexander Stewart, natural son of James IV., king of Scotland. Father and son fell together, not long after, at Flodden. In the early spring of 1509, the tutor and pupil removed to Siena, and from Siena Erasmus went on to Rome. As his reputation had gone before him, he was received wherever he came with marks of distinction. But he learnt nothing from intercourse with the Italian literati; the Renaissance had already spent itself, and Erasmus complained "In Italia frigent studia, fervent bella." He had various offers of preferment, but a letter from Lord Mountjoy announcing the death of the king of England, April, 1509, and magnifying the favorable disposition of the young sovereign, Henry VIII., toward Erasmus, and toward learning in general, determined his return to this country. From London, where he was the guest of Thomas More, and where he wrote his *Encomium Morie*, he moved to Cambridge, whither he was invited by John Fisher, bishop of Rochester, and lodged in Queen's College, of which Fisher was president. By Fisher's interest he was appointed Lady Margaret's professor of divinity, and afterward regius reader of Greek. From his mention of the grammars of Chrysoloras and of Gaza as the text books on which he lectured, it may be inferred that the study of Greek was still in its infancy in that university. Gibbon's sarcasm that "Erasmus learned Greek at Oxford and taught it at Cambridge" has just this foundation.

The stipends of these chairs were small, and Erasmus refused to take fees from students mostly very poor. He lived upon presents from wealthy ecclesiastics. Archbishop Warham was his principal patron. Erasmus says, "He has given me a living worth a hundred nobles, and changed it at my request for a pension of one hundred crowns. Within these few years he has given me more than four hundred nobles without my asking; one day he gave me one hundred and fifty.

From other bishops I have received more than one hundred. Lord Mountjoy has appointed me a pension of one hundred crowns." In the autumn of 1513, he bade farewell to England, visited Lord Mountjoy at the Castle of Ham, in Picardy, of which he was governor, and passed by the Rhine to Strasburg. Here he made the acquaintance of Wimpfeling, Sebastian Brant, and the young Johann Sturm. He employed his time on board the tow-boat by which he leisurely ascended the river in correcting his "Commentarii de duplici copia," etc., for a new edition. To Basel, which was to be the home of his old age, he was attracted by the reputation of its press. But he met with such a hearty welcome from Froben and Amerbach, and found so agreeable a circle of men of learning, that he passed the whole winter 1514-15 here. The bishop of Basel, Christoph von Utenheim, was so much pleased with him that he sought to domesticate him in his house; he made the acquaintance of Zwingli and of Hans Holbein, and drew round him a circle of young students full of ardor for learning, and consequently of admiration for Erasmus—Glareanus, Ecolampadius, Beer, Myconius, Sapidus, and, above all, Beatus Rhenanus, who became his attached disciple and biographer.

Though from this time forward Basel became the center of occupation and interest for Erasmus, yet for the next seven years he was in constant movement, from Basel to Flanders, thence to England in 1517, and back again to Basel.

In 1527 Johann Froben died, and the disturbances at Basel, occasioned by the zealots for the religious revolution which was in progress throughout Switzerland, began to make Erasmus desirous of changing his residence. He selected Freiburg in the Breisgau, as a city which was still in the dominion of the emperor, and was free from religious dissension. Thither he removed in April, 1529. He was received with public marks of respect by the authorities, who granted him the use of an unfinished residence which had been begun to be built for the late Emperor Maximilian. Erasmus proposed only to remain at Freiburg for a few months, but found the place so suited to his habits that he bought a house of his own, and remained there six years. A desire for change of air—he fancied Freiburg was damp—rumors of a new war with France, and the necessity of seeing his *Ecclesiastes* through the press, took him back to Basel in 1535. He lived now a very retired life, and saw only a small circle of intimate friends. It was now that a last attempt was made by the papal court to enlist him in some public war against the Reformation. On the election of Paul III. in 1534, he had, as usual, sent the new pope a congratulatory letter. After his arrival in Basel, he received a complimentary answer, together with the nomination to the deanery of Deventer, the income of which was reckoned at 1,500 ducats. This nomination was accompanied with an intimation that more was in store for him, and that steps would be taken to provide for him the income, viz., 3,000 ducats, which was necessary to qualify for the cardinal's hat. But Erasmus was even less disposed now than he had been before to barter his reputation for honors. His health had been for some years gradually declining, and disease in the shape of gout gaining upon him. In the winter of 1535-6, he was confined entirely to his chamber, many days to his bed. Though thus afflicted he never ceased his literary activity, dictating his tract *On the Purity of the Church*, and revising the sheets of a translation of Origen which was passing through Froben's press. His last letter is dated June 28, 1536, and subscribed "Eras. Rot. ægra manu." "I have never been so ill in my life before as I am now—for many days unable even to read." Dysen-

tery setting in carried him off July 12, 1536, in his 69th year.

By his will, now preserved in the library at Basel, he left what he had to leave, with the exception of some legacies, to Boniface Amerbach, Johann Froben's son-in-law, partly for himself, partly in trust for the benefit of the aged and infirm, or to be spent in portioning young girls, and in educating young men of promise. He left none of the usual legacies for masses or other clerical purposes, and was not attended by any priest or confessor in his last moments.

ERATO, the muse who presided over amatory poetry. See MUSES.

ERATOSTHENES, a celebrated astronomer and geometrician of Alexandria, was born at Cyrene, 276 B.C. His fame as an astronomer has cast into the shade his other accomplishments, but in his own day he had some reputation, both as a poet and as a grammarian, and he was appointed superintendent of the great Alexandrian library by Ptolemy Euergetes. He died of voluntary starvation, from grief on account of his blindness, 196 B.C. His works, with the exception of the *Catalasterismi*, or catalogue of the constellations, exist only in fragments.

ERBACH, the chief town of a circle in Hesse-Darmstadt, province of Starkenburg, is situated on the Mümling, twenty-two miles southeast of Darmstadt.

ERCILLA Y ZUNIGA, ALONSO DE (1533-1595), a Spanish soldier and poet, was born in Madrid.

ERDELYI, JÁNOS, an Hungarian poet and author, was born in 1814 at Kapos, in the county of Ungvár, and educated at the Protestant college of Sárospatak. In 1833 he removed to Pesth, where, having attracted notice by his poetical talents, he was, in 1839, elected member of the Hungarian Academy of Sciences. He died on January 23, 1868.

ERDMANN, OTTO LINNÉ (1804-1869), a German chemist, was the son of Karl Gottfried Erdmann, the physician who introduced vaccination into Saxony.

EREBUS. This word, which denotes darkness, comes probably from the same source as the Greek, to cover, and a roof, and has by some been connected also with the Hebrew Ereb, night, which reappears in Algarve. In the Hesiodic *Theogony*, 123, Erebus is, with Nyx, the night, the offspring of Chaos; and Erebus and Nyx become the parents of Æther and Hæmera, the pure air and the day.

ERECHTHEUS, in Greek legend, apparently the same as Erichthonius, was a local hero of Attica, with whom was associated the belief of the Athenians in their ancestors having sprung from the soil (see AUTOCHTHONES). But the story of his birth is told generally under the name of Erichthonius, who, in the form of a serpent, was the offspring of Athena and Hephæstus, and was by the former handed over in a closed basket to the three daughters of Cecrops, Aglaurus, Herse, and Pandrosus, with a command not to open it.

ERETRIA. See EUBGEA.

ERFURT, a city of Prussian Saxony, and the capital of an administrative district, is situated on the Gera, and on the line of the Thuringian Railway, about midway between Gotha and Weimar, which are fourteen miles distant.

ERGOT, or SPURRED RYE, the drug *ergota*, consists of the sclerotium of a fungus, *Tulasne*, obtained almost exclusively from rye. In the ear of rye that is infected with ergot, a species of fermentation takes place, and there exudes from it a sweet, yellowish mucus, which after a time disappears. The ear loses its starch and ceases to grow, and its ovaries become penetrated with the white, spongy tissue of the mycelium of the fungus.

From the mycelium, at the expense of the substance of the ear, is developed the ergot. The active principle of ergot is ergotine, and is used for its contractile effect. It is an anti-phlebotic, causing a cessation of bleeding by its contracting the tissues. In large doses it is an abortive, producing expulsion of the embryo by inducing contraction of the muscular fiber of the womb.

ERIE, a city and port of entry, the capital of Erie County, Pennsylvania, is situated on Lake Erie opposite Presque Island, about 120 miles north of Pittsburg. Population in 1889, about 37,000.

ERIE, LAKE. See ST. LAWRENCE.

ERIGENA, JOHANNES SCOTUS, one of the most important thinkers of the Middle Ages, flourished during the ninth century. The date and place of his birth are still undetermined. He was undoubtedly a native of the British Isles, but of which is quite uncertain. He has been claimed for England by Gale, who thinks that the name *Erigena* is derived from *Ergene* in Herefordshire; for Scotland by Mackenzie, who supposes him to have been born at Aire; for Ireland by Moore and the majority of writers. The name *Erigena*, often written *Jerugena*, seems to point to Ireland, *Ierne*, as the place of his birth or training; *Scotus* may be thought to indicate that he was of Scottish extraction. As to the date of his birth, the best authorities fix it about 800–810, but on grounds entirely conjectural.

The only portion of *Erigena's* life as to which we possess accurate information, was that spent at the court of Charles the Bald. Charles invited the philosopher to France soon after his accession to the throne, probably in the year 843, and placed him at the head of the court school—*schola palatina*. The reputation of this school or college seems to have increased greatly under *Erigena's* leadership, and the philosopher himself was treated with the greatest familiarity and indulgence by the king.

The latter part of his life is involved in total obscurity. The story that in 882 he was invited to Oxford by Alfred the Great, that he labored there for many years, became abbot at Malmesbury, and was murdered by his scholars, is apparently without any satisfactory foundation, and doubtless refers to some other *Johannes*. *Erigena* in all probability never left France, and Hauréau has advanced some reasons for fixing the date of his death about 877.

ERIGONE. In the Attic myth of Dionysus, *Erigone* is the daughter of Icarus, who, having received from Dionysus the gift of wine, shares it with some shepherds, who, drinking it undiluted, fancy themselves poisoned, and having murdered Icarus, throw his body into a well. Guided by her dog Maira (the glistening one), *Erigone*—whose name, like that of *Protogeneia* (see *ENDYMION*), denotes one born in early morning—discovers the crime, and hangs herself. After her death she is said to have been translated to the constellation which the Latins called *Virgo*.

ERINNA, a Greek poetess, the contemporary and friend of Sappho, was probably a native of Rhodes or the adjacent island of Telos, and was born about 630 B.C. Although she died at the early age of nineteen, her poems were among the most famous of her time.

ERINYES, the Greek name for the beings whom the Latins called *Furiæ*, *Furies*. They were especially the avengers of iniquity, and, as such, acquired a character so fearful that those who had need to speak of them called them the *Eumenides*, or merciful beings, to win from them the pity which they were but little supposed to feel. The name *Erinyes* cannot be explained from the Greek language; but in the Hymns of the *Rig-Veda* constant mention is made of *Saranyu*, who there is the Dawn whose light steals across the heaven, re-

vealing the things of darkness. Of this being the Vedic hymn-makers speak as finding out the evil deeds done during the night, and punishing the wrong-doer.

ERIPHYLE, in Greek mythology, the wife of the seer *Amphiarus*, whom the Argive chief *Adrastus* took with him to Thebes, because a prophecy had said that that city could not otherwise be taken. Not wishing to meddle in a quarrel which was not his own, *Amphiarus* was compelled, by a promise which he had previously given to *Adrastus*, to abide by the decision of *Eriphyle*; and *Eriphyle* had been bribed by *Polynices*, the son of *Cedipus*, with the gift of the necklace of *Harmonia*, to pronounce in favor of the expedition. Thus constrained to go, the seer charged his sons to slay their mother if they should hear of his death and to march against Thebes. The enterprise at *Adrastus*, known as the first Theban war, failed, and the earth opening swallowed *Amphiarus* in his chariot. His son *Alcmæon* upon this slew his mother, whose *Erinyes* gave him no rest until he surrendered to *Phœbus* the necklace of *Harmonia* and found out a spot to dwell in on which the sun had never shone at the time of *Eriphyle's* death. Such a place of banishment he found on the islands called *Cenidae*, which had grown up at the mouth of the river *Achelous* from the deposits brought down by its stream. Here he married *Callirhoe*, the daughter of the river god, who caused his death at the hands of the sons of *Phegeus* by insisting on his fetching her the necklace of *Eriphyle*.

ERIS, in Greek mythology, a sister of the war-god *Ares*, and in the Hesiodic theogony a daughter of *Nyx*, the night, who is also the mother of righteous recompense, *Femesis*. In the *Iliad* *Eris*, or *Strife*, is described as insignificant at first, but as swelling until her head touches the heavens. In the legend of the Trojan war, *Eris* is the goddess who at the marriage festival of *Peleus* and *Thetis* flings on the table a golden apple, which is inscribed as a gift for the fairest of the fair. The rivalry of the three deities—*Hera*, *Aphrodite*, and *Athena*—for the gift is decided by the judgment of *Paris*, who, being appointed umpire by *Zeus*, bestows it on *Aphrodite*. In the *Æneid* she appears under the name of *Discordia*.

ERIVAN, or IRWAN, in Persian REWAN, a town of Russian Armenia, at the head of a province of the same name, is situated 3,430 feet above the level of the Black Sea, on the Zengui, Zanga, or Hrastan, an affluent of the Araxes, about 171 miles south-southwest of Tiflis by road.

ERLANGEN, a town of Bavaria, in the district of Middle Franconia is situated at the confluence of the Schwabach with the Regnitz, eleven miles north-north-west of Nuremberg, and on the railway between that town and Bamberg.

ERLAU, a fortified town of Hungary, capital of the vármegye or county of Heves, on the Erlau, or Eger, an affluent of the Theiss, sixty-seven miles east-northeast of Pesth.

ERLKONIG, or ERL-KING, a mythical character in modern German literature, represented as a gigantic, bearded man with a golden crown and trailing garments, who carries children away to that undiscovered country where he himself abides. There is no such personage in ancient German mythology, and the name is linguistically nothing more than the perpetuation of a blunder. It first appeared in Herder's *Stimmen der Völker*, 1778, where it is used in the translation of the Danish song of the *Elf-King's Daughter* as equivalent to the Danish *ellerkonge*, or *ellkonge*, that is, *elrkonge*, the king of the elves; and the true German word would have been *Elbkönig*, or *Elbenkönig*, afterward used under the modified form of *Elfenkönig* by Wieland in his *Oberon*, 1780.

ERMAN, PAUL, a German physicist, was born in Berlin, February 29, 1764. On the foundation of the university of Berlin in 1810 he became professor of physics, an office which he held until his death in October 11, 1851. In 1806 he became a member of the Academy of Physical Science. Erman made various discoveries of some importance in the departments of electricity, magnetism, optics and physiology.

ERMINE, a carnivorous mammal belonging to the family *Mustelida*, or Weasels, and resembling the other members of the family in the great length and slenderness of its body and the shortness of its limbs, to which it owes the peculiar snake-like character of its motions. It usually measures ten inches in length exclusive of the tail, which is about four inches long, and which becomes bushy toward the point. Its fur in summer is of a reddish brown color above and white beneath, changing in the winter of northern latitudes to snowy whiteness, except at the tip of the tail, which at all seasons is of a jet black color. In Scottish specimens this change in winter is complete, but in those found in the southern districts of England it is usually only partial, the ermine presenting during winter a piebald appearance. The white color is evidently protective, enabling the animals to elude the observation of their enemies, and to steal unobserved on their prey. It also retains heat better than a dark covering, and may thus serve to maintain an equable temperature at all seasons within the body.

ERNESTI, JOHANN AUGUST, one of the most illustrious philologists and theologians of the last century. He was born August 4, 1707, at Tennstädt in Thuringia, of which place his father, Johann Christoph Ernesti, likewise a distinguished theologian, was pastor, besides being superintendent of the electoral dioceses of Thuringia, Salz, and Sangerhausen. After having received his first instruction in classics from his father, and in the gymnasium of his native town, he was sent at the age of sixteen to the celebrated Saxon cloister school of Plöta. At twenty he entered the University of Wittenberg, and studied afterward at the University of Leipzig. In 1730 he was made master in the faculty of philosophy. In the following year he accepted the office of corrector in the Thomas school of Leipzig, of which J. M. Gesner was then rector; and on Gesner's being called in 1734 as professor of rhetoric to Göttingen, he succeeded him as rector. He was, in 1742, named extraordinary professor of ancient literature in the University of Leipzig, and in 1756 promoted to the ordinary professorship of rhetoric. Here his reputation as a scholar, and his rational treatment of biblical exegesis, paved the way for his entrance into the theological faculty, in which he received his doctor's degree in 1758. Through the elegance of his learning, and his manner of discussion, he cooperated with Baumgarten of Halle in disengaging dogmatic theology from the scholastic and mystical excrescences with which it was then deformed, and thus paved the way for a revolution in theology. He died, after a short illness, in his seventy-sixth year, September 11, 1781.

ERNESTI, JOHANN CHRISTIAN GOTTLIEB (1756-1802), nephew of the preceding, a distinguished classical scholar and critic.

ERNST, HEINRICH WILHELM, an eminent violinist and composer, was born in Brunn, in Moravia, in 1814. At the age of sixteen he made a concert tour through various towns of South Germany, which was the means of establishing his reputation as a violinist of the highest promise. In 1832 he visited Paris, where he found a warm reception, and continued to reside for several years. During this period he formed that intimacy with Stephen Heller of which a permanent memorial has been left in their charming joint-compositions — the

Pensées Fugitives for piano and violin. In 1843 he paid his first visit to London at the close of the musical season. The impression which he then made on a limited circle was more than confirmed during a longer residence in the following year, when his rare powers as a violinist were recognized by the general body of the musical public. Thenceforward he visited England nearly every year, until his health entirely broke down under the pressure of long continued neuralgic disease of a most severe kind, which frequently incapacitated him from the exercise of his art. The last seven years of his life were spent in retirement, chiefly at Nice, where he died on October 8, 1865.

EROS, in Greek mythology, Love or Desire. By later poets he is represented as a son of Zeus and Gaia (the Earth), or Aphrodite, or Artemis; but in the Hesiodic theogony he makes up, with Chaos, Gaia, and Tartarus, the number of self-existent deities, and as the most beautiful of all the gods, he conquers the mind and will of both gods and men. The name Eros answers to the Vedic Arusha, a name applied to the sun, but only at his rising. Arusha, like the Greek Eros and the Latin Cupido, is spoken of as a child with beautiful wings.

ERPENIUS (original name **VON ERPE**), THOMAS, a distinguished Orientalist, was born at Gorcum, in Holland, September 11, 1584. After completing his early education at Leyden, he entered the university of that city, and in 1608 took the degree of master of arts. By the advice of Scaliger he studied the Oriental languages whilst taking his course of theology; and he even then gave promise of great distinction in that department of learning. He afterward traveled in England, France, Italy, and Germany, forming connections with learned men, and availing himself of the information which they communicated. During his stay at Paris he contracted a friendship with Casaubon, which lasted during his life, and also took lessons in Arabic from an Egyptian, Joseph Barbutus, otherwise called Abudakni. At Venice he perfected himself in the Turkish, Persian, and Ethiopic languages. After a long absence, Erpenius returned to his own country in 1612, and, on February 10, 1613, he was appointed professor of Arabic and other Oriental languages, Hebrew excepted, in the university of Leyden. Soon after his settlement at Leyden, animated by the example of Savary de Brèves, who had established an Arabic press at Paris at his own charge, he caused new Arabic characters to be cut at great expense, and erected a press in his own house. In 1619 the curators of the university of Leyden instituted a second chair of Hebrew in his favor. In 1620 he was sent by the States of Holland to induce Pierre Dumoulin or André Rivet to settle in that country; and, after a second journey, he was successful in inducing Rivet to comply with their request. Some time after the return of Erpenius, the States appointed him their interpreter; and in this capacity he had the duty imposed upon him of translating and replying to the different letters of the Moslem princes of Asia and Africa. His reputation had now spread throughout all Europe, and several princes, the kings of England and Spain, and the Archbishop of Seville made him the most flattering offers; but he constantly refused to leave his native country. In addition to the numerous works he had already published, he was preparing an edition of the Koran with a Latin translation and notes, and was projecting an Oriental library, when at the early age of forty a contagious disease cut short his life, November 13, 1624.

ERSCH, JOHANN SAMUEL, the founder of German bibliography, was born at Gross Glogan, in Prussian Silesia, June 23, 1766. In 1785 he entered the Univer-

sity of Halle with the view of studying theology, but very soon his whole attention became engrossed with history, bibliography, and geography. At Halle he made the acquaintance of Fabri, professor of geography; and when the latter was made professor of history and statistics at Jena, Ersch accompanied him thither, and aided him in the preparation of several works. He also devoted a large portion of his time to the acquisition of modern languages, and became a thorough proficient in French, Italian, English, Swedish, and Danish, and in their respective literatures. In 1788, he published the *Verzeichniss aller anonymischen Schriften*, as a supplement to the fourth edition of Meusel's *Gelehrtes Deutschland*. In 1795, he went to Hamburg to edit the *Neue Hamburger Zeitung*, founded by Victor Klopstock, brother of the poet, but returned in 1800 to Jena to take part in the preparation of the *Allgemeinen Literaturzeitung*. He also obtained in the same year the office of librarian in the university, and in 1802, was made professor of philosophy. In 1803, he accepted the chair of geography and statistics at Halle, and in 1808 was made principal librarian. He died at Halle, January 16, 1828.

ERSKINE, EBENEZER, the chief founder of the Secession Church (formed of dissenters from the Church of Scotland), was the son of the Rev. Henry Erskine, who at one time was minister at Cornhill, North Durham, but was ejected in 1662 by the Act of Uniformity, and, after suffering some years' imprisonment, was after the Revolution appointed to the parish of Chirside, Berwickshire. Erskine was born on June 22, 1680, most probably at Dryburgh, Berwickshire, as his parents were residing there for the greater part of that year. He entered the university of Edinburgh in 1693, and took his M. A. degree in 1697. He was licensed to preach in 1702, and in the following year was settled in the parish of Portmoak, Kinross-shire. There he remained for twenty-eight years, after which, in the autumn of 1731, he was translated to the West Church, Stirling. Some time before this, he along with some other ministers was "rebuked and admonished" by the General Assembly for defending the doctrines contained in a book called the *Marrow of Modern Divinity*. A sermon which he preached on lay-patronage before the synod of Perth, in 1733, furnished new grounds of accusation, and he was compelled to shield himself from rebuke by appealing to the General Assembly. Here, however, the sentence of the synod was confirmed, and after many fruitless attempts to obtain a hearing, he and other three ministers, Wilson, Moncrieff, and Fisher, were suspended from the office of the ministry by the commission in November of that year. Against this sentence they protested, and constituted themselves into a separate church court, under the name of the Associate Presbytery. It was not, however, till 1739 that they were again summoned before the Assembly, when appearing in their corporate capacity they declined the authority of the church, and were deposed in the following year. They received numerous accessions to their communion, and remained in harmony with each other till 1747, when a division took place in regard to the nature of the oath administered to burgesses. Erskine joined with the "Burgher" section, to whom he became professor of theology. He continued also to preach to a numerous congregation in Stirling till his death, which took place on June 2, 1754.

ERSKINE, JOHN, of Carnock, an eminent writer on the law of Scotland and professor in the University of Edinburgh, was born in 1695. In 1737 he was appointed professor of Scots law in the University of Edinburgh—a position which he proved to be peculiarly well fitted to adorn. In 1754 he published his *Principles of the*

Law of Scotland. He retired from his chair in 1765; and during the remainder of his uneventful life he occupied himself with the preparation of his great work, the *Institute of the Law of Scotland*, which he did not live to publish. He died at Cardross, on March 4, 1768.

Erskine's *Institute*, although it does not exhibit the grasp of principle which distinguished his great predecessor Lord Stair, is so conspicuous for learning, accuracy, and sound good sense, that it has always been esteemed of the highest authority on the law of Scotland.

ERSKINE, JOHN, D.D., son of the above, a minister of the Church of Scotland, was born on June 2, 1721. He was licensed to preach by the presbytery of Dunblane in 1743; and in May of the following year he was ordained minister of the important parish of Kirkintilloch, near Glasgow. In 1753 he was translated to Culross, in Fifeshire, from which he was removed in 1758, to the New Greyfriars Church in Edinburgh. In 1767 this was exchanged for the collegiate charge of the Old Greyfriars Church, where he became the colleague of Principal Robertson, the historian. Here he remained until his death, which took place on January 19, 1803.

ERSKINE, RALPH (1685-1752), brother of Ebenezer Erskine. After studying at the University of Edinburgh, he was licensed as a preacher in 1709, and in 1711 was ordained as assistant minister at Dunfermline. He homologated the protests which his brother laid on the table of the Assembly after being rebuked for his synod sermon, but he did not formally withdraw from the Establishment till 1737. He was also present, though not as a member, at the first meeting of the Associate Presbytery. When the severance took place on account of the oath administered to burgesses, he adhered, along with his brother, to the Burgher section.

ERSKINE, THOMAS, BARON, probably the greatest forensic orator that Britain has produced, was the third and youngest son of Henry David, tenth Earl of Buchan, and was born in Edinburgh, on January 10, 1750. From an early age he showed a strong desire to enter one of the learned professions; but his father, whose means had barely permitted him to afford the expense of a liberal education for his two elder sons—one of whom, afterward the well-known Harry Erskine, was studying for the Scotch bar—was unable to do more than give him a good school education at the high school of Edinburgh and the grammar school of St. Andrews.

He attended the University of St. Andrews for one session, after which, it was decided that he should join the navy; and, in the spring of 1764, he left Scotland to serve as a midshipman on board the *Tartar*. His buoyancy of spirit, and the opportunity for study which he had on board a man-of-war, reconciled him to his new mode of life; but on finding, when he returned to this country, after four years' absence in North America and the West Indies, that there was little immediate chance of his rank of acting lieutenant being confirmed, he resolved to quit the service. He entered the army, purchasing a commission in the 1st Royals with the meager patrimony which had been left to him. But promotion here was as slow as in the navy; while in 1770, he had added greatly to his difficulties by marrying the daughter of Mr. Daniel Moore, M.P. for Marlow, an excellent wife, but as poor as himself. In these depressing circumstances he happened to be quartered where the assizes were being held, and lounging into court one day, was invited to the bench by his father's old friend, Lord Mansfield. He was told that the barristers who were pleading, were at the top of their profession, yet he felt that he could do as well, if not

better, himself. He confided his plan to Lord Mansfield, who did not discourage him, and to his mother, a woman of remarkable determination of character, who strongly advised him to quit the army for the law. Accordingly, on April 26, 1775, he was admitted a student of Lincoln's Inn. He also, on January 13, following, entered himself as a gentleman commoner on the books of Trinity College, Cambridge, but merely that by graduating he might be called two years earlier. He placed himself as a pupil under Mr. Buller, and when that eminent lawyer was elevated to the bench, was called to the bar on July 3, 1778. His success was immediate and brilliant. An accident was the means of giving him his first case, *Rex v. Baillie*, in which he appeared for Captain Baillie, the lieutenant-governor of Greenwid Hospital, who had published a pamphlet animadverting in severe terms upon the abuses which Lord Sandwich, the First Lord of the Admiralty, had introduced into the management of the hospital, and against whom a rule had been obtained from the Court of King's Bench, to show cause why a criminal information for libel should not be filed. Erskine was the junior of five counsel; and it was his good fortune that the prolixity of his leaders consumed the whole of the first day, thereby giving the advantage of starting afresh next morning. He made use of this opportunity to deliver a speech of wonderful eloquence, skill, and courage, which captivated both the audience and the court. The rule was discharged, and Erskine's fortune was made. He received, it is said, thirty retainers before he left the court. In 1781, he delivered another remarkable speech, in defense of Lord George Gordon — a speech which gave the death-blow to the doctrine of constructive treason. In 1783, when the Coalition Ministry came into power, he was returned to parliament as member for Portsmouth.

His first speech in the House of Commons was a failure; and he never in parliamentary debate possessed anything like the influence he had at the bar. He lost his seat at the dissolution in the following year, and remained out of Parliament until 1790, when he was again returned for Portsmouth. But his success at the bar continued unimpaired. In 1789 he was counsel for Stockdale, a bookseller, who was charged with seditious libel in publishing a pamphlet in favor of Warren Hastings, whose trial was then proceeding; and his speech on this occasion, probably his greatest effort, is a consummate specimen of the art of addressing a jury. Three years afterward he brought down the opposition alike of friends and foes by defending Thomas Paine, author of *The Rights of Man* — holding that an advocate has no right, by refusing a brief, to convert himself into a judge. As a consequence he lost the office of attorney-general to the Prince of Wales, to which he had been appointed in 1786; the prince, however, subsequently made amends by making him his chancellor. Among Erskine's later speeches may be mentioned those for Horne Tooke and the other advocates of parliamentary reform, and that for Hadfield, who was accused of shooting at the king. On the accession of the Grenville ministry in 1806, he was made lord chancellor, an office for which his training had in no way prepared him, but which he fortunately held only during the short period his party was in power. Of the remainder of his life it would be well if nothing could be said. Occasionally speaking in parliament, and hoping that he might return to office should the prince become regent, he gradually degenerated into a state of useless idleness. Never conspicuous for prudence, he aggravated his increasing poverty by an unfortunate second marriage. Once only — in his conduct in the case of Queen Caroline — does he recall his former self. He

died at Almondell, Linlithgowshire, November 17, 1823, of inflammation in the chest, caught on the voyage to Scotland.

ERSKINE, THOMAS, of Linlathen, a writer on theology and religion, son of David Erskine, writer to the signet in Edinburgh, was born October 13, 1788. Becoming in 1810 a member of the Edinburgh faculty of advocates, he for some time enjoyed the intimate acquaintance of Cockburn, Jeffrey, Scott, and the other distinguished men whose talents then lent an unusual luster to the Scotch bar. On the death of his elder brother, in 1816, he succeeded to the family estate of Linlathen, near Dundee, and retired from the bar — occupying the chief portion of his subsequent life in the management of his estate, in the intercourse of a few select friends, and in the discussion — either by conversation, by letters, or by literary publications — of those religious topics which he considered to have a vital relation to man's highest welfare. He died at Edinburgh, March 20, 1870.

ERYSIPÉLAS, *the Rose, St. Anthony's Fire* — a disease characterized by diffuse inflammation of the skin, attended with fever. Two kinds of this disorder are recognized, namely, — *traumatic* erysipelas, which occurs in connection with some wound or external injury, and may thus affect any part of the body where such lesion may exist; and *idiopathic* erysipelas, in which no connection of this kind can be traced, but which appears to arise spontaneously, and more commonly affects the face and head. The contagiousness of erysipelas in its traumatic form is often illustrated in the surgical wards of hospitals, where, having once broken out, it is apt to spread with great rapidity, and to produce disastrous results, as well as in lying-in hospitals, where its occurrence gives rise to the spread of a form of puerperal fever of virulent character. It is not so certain that the disease in its idiopathic variety is contagious to persons who have no wound or abrasion, and this form of the complaint is in general excited by exposure to cold, a predisposing cause being some deranged or low condition of the general health.

When the erysipelas is of moderate character there is simply a redness of the integument, which feels somewhat hard and thickened, and upon which there often appear small vesications. This redness, though at first circumscribed, tends to spread and affect the neighboring sound skin, until an entire limb or a large area of the body may become involved in the inflammatory process. There is usually considerable pain, with heat and tingling in the affected part. As the disease advances the portions of skin first attacked become less inflamed, and exhibit a yellowish appearance, which is followed by slight desquamation of the cuticle.

The treatment of erysipelas is best conducted on the expectant system. The disease in most instances tends to a favorable termination; and beyond attention to the condition of the stomach and bowels, which may require the use of some gentle laxative, little is necessary in the way of medicine. The employment of preparations of iron in large doses is strongly recommended by many physicians. But the chief point is the administration of abundant nourishment in a light and digestible form. Of the many local applications which may be employed, hot opiate fomentations, such as a decoction of poppy heads, will be found among the most soothing. Dusting the affected part with flour or powdered starch, and wrapping it in cotton wadding, is also of use; or colodion may be painted over the inflamed surface to act as a protective.

ERYTHRÆ, one of the Ionian cities of Asia Minor, was situated on a small peninsula stretching into the Bay of Erythræ. In the peninsula excellent wine was produced.

ERYX, an ancient city and mountain in the west of Sicily.

ERZEROUM, ERZRUM, or sometimes ARZEROUM, an important town of Turkish Armenia, at the head of an extensive vilayet of the same name, the residence of a pasha, and the seat of an Armenian patriarch and a Greek bishop, as well as the center of the fourth army corps, and one of the main strategical points on the Turko-Russian frontier. It is situated 6,200 feet above the level of the sea on the southern edge of a wide valley, surrounded by mountains of considerable elevation.

ERZGEBIRGE, a mountain chain of Germany, forming the boundary between Saxony and Bohemia, and extending in a west-southwest direction from the Elbe to the Fichtelgebirge, where the White Elster has its source. Its length from east northeast to west-southwest is over 100 miles, and its average breadth about twenty-five miles. As its name indicates, it is famous for its mineral ores. These are chiefly silver and lead, the layers of both of which are very extensive, tin, nickel, copper, and iron. Gold is found in several places, and some arsenic, antimony, bismuth, manganese, mercury, and sulphur.

ESARHADDON ("Assur gave brothers") succeeded his father Sennacherib as king of Assyria, January, 680 B.C. He had had to fight a battle a few weeks previously against his elder brothers, Adrammelech and Nergal-sharezer, who had murdered their father, and after their defeat fled to Armenia. The murder had probably been occasioned by the partiality shown by Sennacherib for Esarhaddon, a curious record of which has been preserved to us in a kind of will in which he bequeaths to Esarhaddon various private property. Esarhaddon seems to have been the ablest of the Assyrian monarchs; he was distinguished equally as a general and an organizer, and under him the Assyrian empire attained almost its furthest limits. His character, too, seems to have been milder than that of most other Assyrian kings, and his policy was one of conciliation. Babylon, which had been destroyed by Sennacherib in 691 B.C., was rebuilt, and made the southern capital. It was to Babylon, therefore, that Manasseh was brought. Esarhaddon's first object was to strengthen his empire by overthrowing the rival monarchy of Egypt, and diverting the trade of Phœnicia to Nineveh.

Zidon was accordingly razed to the ground, and the Assyrian arms carried as far as Cyprus; Tyre and Carmemish, however, rather than Nineveh, profited by the event. Egypt, then under the Ethiopian Tirhakah, was invaded, the Assyrians being supplied with water during their march across the desert by the king of the Arabians. Memphis and its treasures were captured, and Egypt as far as Thebes was made an Assyrian province, and divided into twenty satrapies. These twenty satrapies Herodotus has turned into dodecarchy, and connected with the twelve courts of the Labyrinth built centuries before. The conquest of Egypt had been preceded by two important campaigns. One was against the Minni and the Medes, which secured the north-eastern frontier of the empire; the other was an expedition which penetrated into the heart of Arabia, and reflected the highest credit on the enterprise and military genius of the Assyrian monarch. His armies marched a distance of about 900 miles into the desert, traversing Uz and Buz, and reducing a large number of Arab tribes to subjection. The object of both these campaigns was clearly the same — to spread terror among the barbarous tribes on the frontiers, and to prevent them from harassing the Assyrian provinces. Early in his reign Esarhaddon had checked the southward march of the Gimir-

rai, or Cimmerians, who had been driven from their old seats on the Volga by the Scythians.

Egypt had been aided in its struggle against Esarhaddon by Tyre, which had revolted from Assyria in spite of the favor shown to it. The town was at once blockaded; and the siege was still continuing when Esarhaddon died, in 668 B.C., after a reign of thirteen years, leaving behind him four sons and one daughter. Two years previously, just after his return from the Egyptian campaign, he had associated his son Assur-bani-pal, or Sardanapalus, in the government. The fact was announced to an assembly of the people on April 12th.

ESAU, or EDM, the father of the Edomites, was the son of Isaac and Rebecca, and the elder twin brother of Jacob. According to the narrative contained in Genesis, the name Esau (hairy) was given to him on account of his hairy appearance at his birth, and the name Edom (red) when he sold his birthright to Jacob for a meal of red lentile pottage.

ESCHATOLGY, or the "doctrine of last things," is a theological term for the facts revealed in Scripture about a future state, and the result of Christian speculation on these facts.

Reformed eschatology differs from that of the primitive church in the absence of the intermediate state, and from that of Rome in the rejection of purgatory. Both these forms of belief go to mitigate the doctrine of an endless hell.

ESCHEAT in English law, is the reversion of lands to the next lord on the failure of heirs of the tenant.

ESCHENBACH, WOLFRAM VON. See WOLFRAM.

ESCHENBURG, JOHANN JOACHIM, a German littérateur, was born at Hamburg, December 7, 1743. After receiving his early education in his native town, he studied at Leipsic and Göttingen. In 1767 he was brought by the court-preacher Jerusalem to Brunswick, and through his influence he became a professor in the Collegium Carolinum. He was also made an aulic councillor, and senior of the Syriac college, and ultimately received the office of privy councillor of justice. He is best known by his German translations of English works. He published a series of German translations of the principal English writers on aesthetics, such as Brown, Burney, Priestly, and Hurd; and Germany owes also to him the first complete translation of Shakespeare's plays, which, though it is deficient in poetical merits, and somewhat too free, is still valuable on account of its general correctness. He died April 27, 1820.

ESCHENMAYER, KARL ADOLF AUGUST VON, a German philosopher and physicist, was born at Nuremberg, January 4, 1770. After receiving his early education at the Caroline academy at Stuttgart, he entered the university of Tübingen, where he received the degree of doctor of medicine. He practiced for some time as a physician at Salz, and then at Kirchheim, and in 1811 he was chosen extraordinary professor of philosophy and medicine at Tübingen. In 1818 he became ordinary professor of practical philosophy, but in 1836 he resigned his professorship, and took up his residence at Kirchheim, where, till the close of his life, he devoted his whole attention to philosophical studies. He died November 13, 1852. The philosophy of Eschenmayer is grounded primarily on the Kantian metaphysics, and in many particulars his views are identical with those of Schelling, but he differed from him in regard to the knowledge of the absolute.

ESCHSCHÖLTZ, JOHANN FRIEDRICH, a German traveler and naturalist, born November 12, 1793, at Dorpat, where he died May 12, 1831. He was natu-

alist and physician to Kotzebue's exploring expedition during 1815-18. On his return, he was appointed professor of medicine, and manager of the zoological museum of the university at Dorpat, and in 1823-26 he accompanied Kotzebue on his second voyage of discovery.

ESCHWEGE, the head town of a circle in the district of Cassel, province of Hesse-Nassau, Prussia, is situated on the Werra, and on the Bebra-Friedland Railway, about twenty-eight miles southeast of Cassel. It is a thriving manufacturing town, its chief industries being leather-making, yarn-spinning, cotton and linen weaving, the manufacture of liquors and oil, and glue and soap boiling.

ESCHWEILER, a town of Rhenish Prussia, in the government district of Aix-la-Chapelle, is situated on the Inde, and on the Berg-Mark Railway, about eight miles east-northeast from Aix-la-Chapelle.

ESCOBAR Y MENDOZA, ANTONIO, a Spanish casuist, was a descendant of the illustrious house of Mendoza, and was born at Valladolid in 1589. He was educated by the Jesuits, and at the age of fifteen took the habit of that order. He soon became a famous preacher, and his facility was so great that for fifty years he preached daily, and sometimes twice a day. Notwithstanding his constant oratorical efforts, he was a voluminous writer, and published altogether forty volumes in folio. His first literary efforts were Latin verses in praise of St. Ignatius Loyola and the Virgin Mary; but he is best known as a writer on casuistry. He died July 4, 1669.

ESCORIAL, or, as the name is not infrequently given, ESCURIAL, one of the most remarkable buildings in Europe, comprising at once a convent, a church, a palace, and a mausoleum. It is situated on the southeastern versant of the Sierra de Guadarrama, on the borders of New Castille, about twenty-seven miles northwest of Madrid. The surrounding country is a sterile and gloomy wilderness exposed to the cold and blighting blasts of the Sierra. According to the usual tradition, which there seems no sufficient reason to reject, the Escorial owes its existence to a vow made by Philip II. of Spain shortly after the battle of St. Quentin, in which his forces succeeded in routing the army of France. The day of the victory, August 10, 1557, was sacred to St. Laurence, and accordingly the building was dedicated to that saint and received the title of *El real Monasterio de San Lorenzo del Escorial*.

The first stone was laid in April, 1563; and, under the king's personal inspection, the work rapidly advanced. Abundant supplies of berroqueña, a granite-like stone, were obtained in the neighborhood, and for rarer materials the resources of both the Old and the New World were put under contribution. The death of Toledo in 1567 threatened a fatal blow at the satisfactory completion of the enterprise, but a worthy successor was found in Juan Herrera, Toledo's favorite pupil, who adhered in the main to his master's designs. On September 13, 1584, the last stone of the masonry was laid, and the works were brought to a termination in 1593. Each successive occupant of the Spanish throne has done something, however slight, to the restoration or adornment of Philip's convent-palace, and Ferdinand did so much in this way that he has been called a second founder. In all its principal features, however, the Escorial remains what it was made by the genius of Toledo and Herrera working out the grand, if abnormal, desires of their master.

The ground plan of the building is said to occupy an area of 396,782 square feet, and the total area of all the stories would form a causeway ninety five miles in length. There are seven towers, fifteen gateways, and,

according to Los Santos, no fewer than 12,000 windows and doors.

ESDRAS, BOOKS OF. The books called Esdras third and fourth in the sixth article of the Church of England (1563), have been more commonly known to English readers since the publication of the Geneva Bible (1560) as Esdras first and second. In the earliest Protestant edition of the German Bible (where for the first time the apocryphal books were sharply separated from the canonical) these two books of Esdras or Ezra stood first in the former class (1530). Though neither of them was included by Luther in his version of the Apocrypha, published in 1534.

ESHER, a village and parish in the county of Surrey, England, is situated about fifteen miles southwest of London.

ESHREF, or ASHREF, a town of Persia in the province of Mazanderan, five miles inland from the Caspian Sea. It lies in a hollow of the mountains richly embowered with cypress, orange, and melon trees. The inhabitants number about 5,000 or 6,000.

ESKI-DJUMA, or ESKI-DJUMUA, a town of Bulgaria, about twenty-two miles west of Shumla, on the northern slopes of the Binar-dagh.

ESKILSTUNA, a town of Sweden in the government of Södermanland, and district of Nyköping, on the Hjelmar-Aa, which unites Lake Hjelmar with Lake Malar. It is the principal center of Swedish manufacturing industry, possessing a royal musket-factory, engineering works, cutlery establishments, needle factories, dye-works, and tanneries. Population 6,130.

ESKIMO, ESKIMOS, or ESQUIMAUX, the name applied by European ethnologists to a large number of cognate but widely separated tribes, which are scattered along the coasts of the arctic regions of America and Asia. The Eskimo constitute a very homogeneous race, and are the widest spread aboriginal people in the world. They are entirely unknown in Europe, being confined to the arctic coast of America, and a small portion of the Asiatic shore of Behring Strait. The Aleutians are closely allied to the Eskimo in habits and language, though their culture is somewhat more highly developed. Rink divides them into the following groups, the most eastern of which would have to travel nearly 5,000 miles to reach the most western. The East Greenland Eskimo, few in number, every year advancing further south, and having intercourse with the next section. The West Greenlanders, civilized, living under the Danish crown, and extending from Cape Farewell to 74° N. lat. The Northernmost Greenlanders—the Arctic Highlanders of Ross—confined to Smith, Whale, Murchison, and Wolstenholme, Sounds, north of the Melville Bay glaciers, not extending to the western shores of the former strait, nor within the memory of man having any intercourse with those south of them. They are very isolated, are bold hunters, pagans, and are perhaps the most typical of the Eskimo in Greenland; they have not of recent years greatly decreased, though at present they do not number more than 200. The Labrador Eskimo, mostly civilized. The Eskimo of the middle regions, occupying the coasts from Hudson's Bay to Barter Island, beyond Mackenzie River, inhabiting a stretch of country 2,000 miles in length and 800 in breadth. The Western Eskimo, from Barter Island to the western limits in America. They differ somewhat from the other groups in various habits, such as the use of the baidar or double-manned skin-covered canoe, in the clothing of the men, in their labrets, and in the head-dress of the women. They are allied to the Aleutians and the Indians of Alaska, the Asiatic Eskimo or Tuskis, who are again nearly allied to the Namollo and Itelmes. None of the

Arctic tribes of Europe or Asia have the slightest connection with them. Of all the Eskimo those of Greenland and Labrador are the best known; the others are known but partially.

The Eskimo are not so small as they are usually represented, their height—five feet four inches to five feet ten inches, and in rare case even six feet—being quite up to the average of the coast Indians. Both men and women are muscular and active, the former often inclining to *embonpoint*, and both having a pleasing, good humored, and not unfrequently, even handsome cast of countenance, apt to break into a "grin" on very small provocation. The face is broadly oval, flat, with fat cheeks; forehead not high, and rather retreating; teeth good, though, owing to the character of the food, worn down to the gums in old age; nose very flat; eyes rather obliquely set, small, black, and bright; head largish, and covered with coarse black hair, which the women fasten up into a top-knot on their crown, and the men clip in front and allow to hang loose and unkempt behind. The men have usually a slight mustache, but no whiskers, and rarely any beard. The skin has generally a "bacony" feel, and when cleaned of the smoke, grease, and other dirt—the accumulation of which varies according to the age of the individual—is only so slightly brown that red shows in the cheeks of the children and young women. The people soon age, however. The hands and feet are small and well-formed, and, as a rule, they have a more pleasing appearance than all except the best-looking Indian tribes. The women and children dress entirely in skins of the seal, reindeer, bear, dog, or even fox, the first two being, however, the most common. The men and women's dress is much the same. The jacket of the men has a hood, which in cold weather is used to cover the head, leaving only the face exposed; it must be drawn over the head, as it has no opening in front or behind. The women's jacket has a fur-lined hood for carrying a child, and an absurd looking tail behind, which is, however, usually tucked up. The trousers are either tight or loose, and are fastened into boots made of prepared seal skin, very ingeniously and neatly made. The women's trousers are usually ornamented with eider duck necks, or embroidery of native dyed leather; their boots, which are of white leather, or (in Greenland) dyed of various colors, reach over the knees, and in some tribes are wide at the top, thus giving them an awkward appearance and a clumsy, waddling walk. In winter there are two suits of clothes of this description, one with the hair inside, the other with it outside. They also sometimes wear shirts of bird-skins, and stockings of dog or young reindeer skins. The boots require to be changed when wet, otherwise they would freeze hard in cold weather. Their clothes are, like all the Eskimo articles of dress or tools, very neatly made, fit beautifully, and are sewn with "sinew-thread," with a bone needle if a steel one cannot be had. In person the Eskimo are usually filthy, water not often coming in contact with them unless accidentally. The children when very young are, however, sometimes cleaned by being licked with their mother's tongue before being put into the bag of feathers which serves as their bed, cradle, and blankets.

In summer the Eskimo live in conical skin tents, and in winter usually in half-underground huts built of stone, turf, earth, and bones, entered by a long, tunnel-like passage, which can only be traversed on all fours. Sometimes, if residing temporarily at a place, they will erect neat round huts of blocks of snow with a sheet of ice for a window. In the roof are deposited their spare harpoons, etc.; and from it is suspended the steatite basin-like lamp, the flames of which, the wick being of moss, serves as fire and light. On one side of the hut

is the bench which is used as sofa, seats, and common sleeping place. The floor is usually very filthy, a pool of blood or a dead seal, being often to be seen there. Ventilation is almost non-existent; and, after the lamp has blazed for some time, the family having assembled, the heat is all but unbearable; the upper garment must be taken off, and the unaccustomed visitor gasps half asphyxiated in the mephitic atmosphere. In the summer the wolfish-looking dogs lie outside on the roof of the huts, in the winter in the tunnel-like passage just outside the family apartment. The Western Eskimo build their houses chiefly of planks, merely covered on the outside with green turf. The same Eskimo have, in the more populous places, a public room for meetings. As a rule, each family has a house to itself.

The Eskimo are solely hunters and fishers, and derive most of their subsistence from the sea. Their country will allow of no cultivation worth attending to; and beyond a few berries, roots, etc., they use no vegetable food. They are essentially sarcophagous. The seal, the reindeer when obtainable, and various cetaceous animals supply the bulk of their food, as well as their clothing, light, fuel, and frequently also, when driftwood is scarce or unavailable, the material for various articles of domestic economy. The shuttle-shaped canoe, covered with hairless seal-skin stretched on a wooden or whalebone frame, with only a hole in the center for the paddler, is one of the most characteristic Eskimo implements. The paddler propels it with a bone-tipped double-bladed paddle. He is covered with a waterproof skin or entrail dress, tightly fastened round the mouth of the hole in which he sits, so that, should the canoe overturn, not a drop of water may enter. A skillful kayaker can turn a complete somersault, boat and all, through the water.

The flat-bottomed skin luggage boat, rowed by the women, is another, though less interesting, Eskimo vessel. The sledge, made of two runners of wood or bone—even, in one case on record, of frozen salmon—united by cross bars tied to the runners by hide thongs, and drawn by from four to eight dogs harnessed abreast, is another article of Eskimo domestic economy which no European ingenuity has ever been able to improve. Some of their weapons afford remarkable evidence of inventive skill—in particular, the harpoon, with the point detachable after it has struck the seal, or white whale; the line to which the harpoon is fastened, with the inflated sealskin at the end, which tires out the prey, besides marking its course, and buoys it up when dead; the bird-spears, with bladder attached, and the adventurous side points which strike the animal should the main one miss it, the rib bow of the wild Eskimo, etc. Although they have to maintain a severe struggle for existence against the elements, the Eskimo have been able, in the manufacture of their tools, to develop artistic and mechanical skill far surpassing that of savages more favorably situated, but less endowed with brain power. They sometimes cook their food by boiling, but, when it is frozen, never hesitate to devour it raw. Blood, and the half-digested contents of the reindeer's paunch, are also eagerly consumed by them; but it is a mistake to suppose that they habitually eat blubber. Fat they are no doubt fond of, but blubber is too precious; it must be kept for winter fuel and light. They are enormous eaters; two Eskimo will easily dispose of a seal at a sitting; and in Greenland, for instance, each individual has for his daily consumption, on an average, two and one-half pounds of flesh with blubber, and one pound of fish, besides mussels, berries, sea-weed, etc., to which in the Danish settlements may be added two ounces of imported food. Ten pounds of flesh, in addition to other food, is not uncommonly con-

sumed in a day in time of plenty. A man will lie on his back and allow his wife to feed him with tit-bits of blubber and flesh until he is unable to move.

The Eskimo cannot strictly be called a wandering race. They are nomadic only in so far that they have to move about from place to place during the fishing and shooting season, following the game in its migrations. They have, however, no regular property. They possess only the most necessary utensils and furniture, with a stock of provisions for less than one year; and these possessions never exceed certain limits fixed upon by tradition or custom. Long habit and the necessities of their life have also compelled those having food to share with those having none—a custom which, with others, has conduced to the stagnant condition of Eskimo society and to their utter improvidence.

So far as a nation can be characterized in a few words, it may be said that the Eskimo are, if not in the first rank of barbarous races, not in the last, and that, though they want some of the mental endowments of races like the Polynesians, they are equally free from many of their vicious traits. Their intelligence is considerable, as their implements and folk-tales abundantly prove. They display a taste for music, cartography, and drawing, displaying no small amount of humor, are quick at picking up peculiar traits in strangers, and are painfully acute in detecting the weak points or ludicrous sides of their character. They are excellent mimics, and easily learn the dances and songs of the Europeans, as well as their games, such as chess and draughts. They gamble a little—but in moderation, for the Eskimo, though keen traders, have a deep-rooted antipathy to speculation. When they offer anything for sale—say at a Danish settlement in Greenland—they always leave it to the buyer to settle the price. They have also a dislike to bind themselves by contract. Hence it was long before the Eskimo in Greenland could be induced to enter into European service, though when they do so now-a-days, they pass to almost the opposite extreme—they have no will of their own. It is affirmed by those who ought to know that any sort of licentiousness or indecency which might give rise to public offense is rare among them. In their private life their morality is, however, not high. The women are especially erring; and in Greenland, at places where strangers visit, their extreme laxity of morals, and their utter want of shame, are not more remarkable than the entire absence of jealousy or self-respect on the part of their countrymen and relatives. Theft in Greenland is almost unknown; but the wild Eskimo make very free with strangers' goods—though it must be allowed that the value they attach to the articles stolen is some excuse for the thieves. Among themselves, on the other hand, they are very honest—a result of their being so much under the control of public opinion. Lying is said to be as common a trait of the Eskimo as of other savages in their dealings with Europeans. They have naturally not made any figure in literature. Their folklore is, however, extensive, and shows considerable imagination and no mean talent on the part of the storytellers. In Greenland and Labrador most of the natives have been taught by the missionaries to read and write in their own language. Altogether, the literature published in the Eskimo tongue is considerable. Most of it has been printed in Denmark, but some has been "set up" in a small printing office in Greenland, from which about 280 sheets have issued, beside many lithographic prints. A journal ("something for reading, accounts of all entertaining subjects") has been published since 1861. Two Eskimo have appeared as authors on a small scale, the last being Hans Hendrik, who has published an autobiography, narrating his life

among the Smith Sound Eskimo, and as the hunter of the expeditions of Kane, Hayes, Hall, and Nares. Some of them pick up handicrafts very readily, and those who have wrought in the Copenhagen workshops are said by their employers to learn various kinds of labor more rapidly than average Danish youths of the same age.

The Eskimo nearly everywhere hold the same religious ideas, though in Greenland and Labrador they are, with few exceptions, nominally at least, Christians. The whole world is, according to the pagan Eskimo's belief, governed by *inuas*, supernatural powers or "owners," each of whom holds his sway within natural limits. Any object or individual may have its, his, or her *inua*, though generally speaking the idea of an *inua* is limited to certain localities or passions—such as a mountain or lake, or strength or eating. The soul, for instance, is the *inua* of the body. The earth and the sea rest on pillars, and cover an under-world accessible by various mountain clefts, or by various entrances from the sea. The sky is the floor of an upper-world to which some go after death, while others—good or bad—have their future home in the under-world. Here are the dwellings of the *arsissut*—the people who live in abundance. The upper one, on the contrary, is cold and hungry; here live the *arsartut* or ball-players, so called from their playing at ball with a walrus head, which gives rise to the aurora borealis.

The idiom spoken from Greenland to Northeastern Siberia is, with a few exceptions, the same; any difference is only that of dialect. It differs from the whole group of European languages, not merely in the sound of the words, but more especially in the construction. Its most remarkable feature is that a sentence of a European language is expressed in Eskimo by a single word constructed out of certain elements, each of which corresponds in some degree to one of our words.

The Eskimo differ from most other tribes of savages, and notably from those of the rest of America, by having no chiefs or political and military rulers. The government is mainly a family one, though if a man is distinguished for skill in the chase, strength, shrewdness, or other qualities useful to a wild community, he will no doubt obtain a corresponding influence in the village or settlement. There is also a good deal of dependence of one upon another, as must happen in a people situated as the Eskimo. The family, the inhabitants of a house, and the inhabitants of a wintering place or hamlet are the three subdivisions recognized by the Eskimo; but any connection between the different wintering places is hardly known and is not recognized. They never go to war with each other; and though revengeful, and apt to injure an enemy secretly, they rarely come to blows, and are morbidly anxious not to give offense.

The chief laws are such as the following. Every seal caught at a wintering place should be equally divided as far as it will go. Any one picking up driftwood has only to put some stones on it, as it lies on the shore, to establish his ownership in it. If a seal is harpooned and gets off with the harpoon sticking in it, the first owner loses his right in it if the bladder float gets detached. Any other kind of goods found are the property of the owner. If two hunters at the same time hit a bird, the bird is equally divided between them. All kind of game which is very large or rare is common property. In South Greenland whoever is the first to see a bear has ownership in it, no matter who kills it. The borrower is bound to give compensation for any injury to the tools of another which he may have borrowed. If a man repent of a bargain he has a right to retract; nothing is sold on credit, or at least without being repaid in a short time.

The Greenlanders were always fond of festivals, as are the Eskimo to this day all over their country. When they met each other they used to rub noses together, but this, though a common custom still among the wild Eskimo, is entirely abandoned in Greenland except for the petting of children. There is, in Greenland at least, no national mode of salutation, either on meeting or parting. When a guest arrives or enters a house, commonly not the least sign is made either by him or his host. On leaving a place they now sometimes say, live well, and to an European, do not hurt thy head, viz., against the upper part of the doorway.

No precise statement can be made regarding the numbers of the Eskimo race. On a rough estimate, the whole Eskimo race does not, it is believed, exceed 40,000. But we have really no data, except at spots where they have come in contact with Europeans.

ESKI-SAGRA, or **ESKI-ZAGRA**, a town of European Turkey, province of Adrianople, is pleasantly situated on the southern slope of the Balkans, seventy miles northwest of Adrianople. The vicinity is highly cultivated, and there are some well frequented hot mineral baths. The population of the town numbered about 20,000.

ESKI-SHEHR, a town of Asiatic Turkey, in Asia Minor, about eighty miles southeast of Broussa.

ESNEH, or **ISNE**, the Latopolis of the Greeks, a town of Upper Egypt, on the left bank of the Nile, twenty-eight miles south-southwest of Thebes. To the south of the town lies a Coptic monastery, which attracts a large number of pilgrims from far and near to visit the relics of the martyrs who were put to death at Esneh during the Diocletian persecution, 303 A.D. The population of the town is estimated at 30,000.

ESPARTO, or **SPANISH GRASS**, is a plant resembling the ornamental feather-grass of gardens. It is indigenous to the South of Spain and the North of Africa, and is especially abundant in the sterile and rugged parts of Murcia and Valencia, and in Algeria, flourishing best in sandy, ferruginous, soils, in dry, sunny situations on the sea coast.

ESPINASSE. See **L'ESPINASSE**.

ESPINEL, **VINCENTE**, a Spanish poet and ecclesiastic, born probably in 1551, at Ronda, in the province of Granada. He was educated at Salamanca, was an early patron and friend of Lope de Vega, and served as a soldier in Flanders. His ecclesiastical position seems to have been that of a chaplain at Ronda, but he resided chiefly at Madrid. He is now chiefly noted as having produced one of the best of those romances delineating Spanish manners that have found imitators in other countries. This book, which is entitled *Relaciones de la Vida y Hechos del Escudero Marcos de Obregon*, appeared in 1618 at Barcelona, at a period when Spanish literature was at a low ebb. Espinel seems to have been neglected in his old age, for he died in great poverty at Madrid in 1634.

ESPREMESNIL, or **ÉPRÉMÉNIL**, **JEAN JACQUES DUVAL D'**, was born in 1746 at Pondicherry, of which colony his father was at that time a member of the general council. He returned to France with his father in 1750, and after completing his studies for the legal profession became king's advocate at Châtelet, and shortly afterward counselor of the *parlement* of Paris. He was an enthusiastic defender of the rights of the *parlements* against the edicts of Louis XVI.; and having procured from the printers a copy of the edicts of May, 1788, establishing bailiwicks, and reestablishing the *cour plénière* for the trial of those officers of the *parlements* who refused to register the edicts, he revealed this *coup d'état* to an extraordinary assembly of all the chambers, and by a speech of great eloquence induced

the magistrates to protest against what they considered the threatened violation of their rights. For this he was arrested, after an exciting scene, while occupying his place in the assembly. The president refused to point him out to the officer charged with his arrest, and each of the other members declared himself to be *M. d'Esprêmesnil*; but at last *Esprêmesnil*, while protesting against the violation of justice implied in his arrest, voluntarily delivered himself up. He was banished to the island of St. Margaret, but when a change took place in the ministry a few months afterward, he was recalled to Paris. Shortly after his return he was elected a deputy to the states-general, where he soon became as strenuous in his support of the privileges of the king as he had previously been of the privileges of the *parlements*; and after combating, often with a passionateness amounting to violence, the various decrees restraining the royal authority, he at the close of the assembly in 1791 formally protested against the new constitution. In 1792 he was recognized by the revolutionary mob at the Tuileries, and would have suffered summary execution had he not been rescued half dead from the hands of his tormentors by a patrol of the national guard. He obtained temporary refuge in the monastery of St. Germain, and soon afterward went to Havre, where he lived apparently forgotten till toward the end of 1793, when he was arrested and brought to Paris. He was tried before the revolutionary tribunal, and, being condemned to death, was executed April 23, 1794.

ESPRONCEDA, **JOSÉ DE** (1810-1842), a Spanish poet and political agitator.

ESQUIMAUX. See **ESKIMO**.

ESQUIRE, originally a military office ranking immediately below a knight, whose attendant he was, and the bearer of his helmet, shield, and lance, in the tournament or in the battlefield. In early times the title was derived from office, not from birth, and was not hereditary; latterly, however, it has come into such general use—or rather abuse—that all distinction it once had, or all rule regulating its use, is quite lost.

ESQUIROL, **JEAN ÉTIENNE DOMINIQUE**, a French physician celebrated for his treatment of the insane, was born at Toulouse, in 1772. In 1794 he became a pupil of the military hospital of Narbonne, but as soon as he was able to leave this service he returned to Paris to complete his medical studies. He obtained his doctor's diploma in 1805, and in 1811 became physician of the Salpêtrière. Having from the time that he completed his preparatory studies devoted his chief attention to the treatment of the insane, he commenced in 1817 a course of lectures on that subject, and the revelations he then made of the abuses observed by him in the lunatic asylums of France induced the government to appoint a commission to inquire into the subject. Esquirol, by his eloquence, his untiring energy and devotion, and the results of his skillful treatment, contributed greatly to the introduction of the humane method of dealing with mental maladies. He died at Paris, December 13, 1840.

ESQUIROS, **HENRI ALPHONSE**, a French poet, novelist, and politician, was born at Paris, in 1814. In 1837, he published a novel entitled *Le Magicien*, and in 1840, a historical romance, *Charlotte Corday*. In the same year appeared *L'Evangile du Peuple*, an exposition of the life and character of Jesus, which represents the founder of Christianity as a democratic reformer. For this publication Esquiros was condemned to eight months' imprisonment. In 1847, he published *Histoire des Montagnards*, and in 1851, *Histoire des Martyrs de la Liberté*, two works which obtained a large circulation among the lower classes, and gained for them

author such popularity that in 1849 he was elected a representative of the legislative assembly. In 1851, on account of his extremely radical opinions, and his strong opposition to the empire, he was expelled from France. He proceeded first to Holland, and thence, in 1855, to England, where he was for some time professor of French literature at Woolwich. Here he wrote for the *Revue des Deux Mondes* a number of essays on English life and character, which were afterward translated and published in London, under the title of the *English Home*. He also published in 1859, *La Hollande et la Vie Hollandaise*. His works both on England and on Holland are remarkable for fullness of information and sympathetic appreciation of foreign characteristics. In 1869 he was chosen a member of the legislative assembly for the fourth circumscription of the department of the Bouches du Rhône, and took his seat among the democratic opposition. In September, 1870, he was made superior administrator of the department, but on account of his imprudent political prosecutions he was compelled to resign his office in the November following, after which he became editor of the *Égalité* of Marseilles. In 1871 he was chosen a member of the legislative assembly, and sat again on the extreme left. He died at Versailles, May 13, 1876. Esquirois was too much of a partisan to be properly ranked as a statesman.

ESS, JOHANN HEINRICH VAN, a Catholic theologian, was born at Warburg, Westphalia, February 15, 1772; in 1790 entered, as a novice, the Benedictine abbey of Marienminster, in the bishopric of Paderborn. His Benedictine name was Leander. He was priest at Schwalenberg from 1799 to 1812, after which he became extraordinary professor of theology and joint-director of the teachers' seminary at Marburg. In 1818, he received the doctorate of theology and of canonical law. In 1807, in conjunction with his cousin, he published a German translation of the New Testament, but its circulation was forbidden by the Pope. He died at Affolderbach in the Odenwald, 1847.

ESSEK, ESSEG, or ESZEK, a fortress and imperial free town of Austria-Hungary, in the province of Slavonia, and the capital of the County of Veröcze, is situated on the Drave about 135 miles south by west of Pesth.

ESSEN, a town of Prussia, in the government district of Düsseldorf, province of the Rhine, is situated nineteen miles northeast of Düsseldorf. The town owes its prosperity originally to the large coal mines in its vicinity, which employ more than 20,000 workmen, and afford special facilities for its various industries. It has manufacturing of woollen and linen goods, vitriol, leather, and machines, but is best known by the cast-steel works of Frederick Krupp, at which are manufactured the famous Krupp cannon.

ESSENEES, THE, were one of the three principal sects of the Jews, appearing for the first time in Josephus, about the middle of the second century before Christ. The historian introduces them along with the Pharisees and Sadducees in his account of the period of Jonathan, the Asmonean.

ESSEX, the tenth in size of the English counties, is situated on the southeast coast.

ESSEX, WALTER DEVEREUX, FIRST EARL OF, in the Devereux line, the eldest son of Sir Richard Devereux, was born in 1540. In 1569, he served as high marshal of the field under the Earl of Warwick and Lord Clinton, and materially assisted them in suppressing the northern insurrection. For his zeal in the service of the queen on this and other occasions, he in 1572, received the garter and was created Earl of Essex, a title which formerly belonged to his family through marriage

with the Mandevilles. He offered, on certain conditions, to subdue and colonize, at his own expense, a portion of the Irish province of Ulster, at that time completely under the dominion of rebel chiefs. His offer, with certain modifications, was accepted, and he set sail for Ireland in August, 1573, accompanied by a number of earls, knights, and gentlemen, and with a force of about 1,200 men. The beginning of his enterprise was inauspicious, for on account of a storm which dispersed his fleet and drove some of his vessels as far as Cork and the Isle of Man, his forces did not all reach the place of rendezvous till late in the autumn, and he was compelled to intrench himself at Belfast for the winter. Here, by sickness, famine, and desertions, his troops were diminished to little more than 200 men, and he almost determined to abandon this undertaking; but receiving in the spring a reinforcement, he compelled the submission of Sir Brian MacPhelim, massacred by stratagem 200 of the O'Neils, taking Sir Brian O'Neal prisoner, and induced the Earl of Desmond to surrender himself to the deputy Fitzwilliam. Elizabeth, however, instigated most probably by Leicester, after encouraging Essex to prepare to invade Trilogh Lenogh, suddenly commanded him to "break off his enterprise;" but as she left him a certain discretionary power, he took advantage of it to defeat Trilogh Lenogh, chastise Antrim, and massacre several hundreds of persons, chiefly women and children, discovered hiding in the caves of Rathlin. He returned to England in the end of 1575, resolved "to live henceforth an untroubled life;" but he was ultimately persuaded to accept the offer of the queen to make him earl marshal of Ireland. He arrived in Dublin in September, 1576, and three weeks afterward died of dysentery. There were suspicions that he had been poisoned by Leicester, who shortly after his death married his widow, but these were not confirmed by the *post mortem* examination. The endeavors of Essex to better the condition of Ireland were, it must be admitted, a dismal failure; and the massacres of the O'Neals and of the Scots of Rathlin leave a somewhat dark stain on his reputation.

ESSEX, ROBERT DEVEREUX, SECOND EARL OF, son of the preceding, was born at Netherwood, Herefordshire, November 10, 1567. He entered the University of Cambridge in 1577, and graduated in 1581. In 1585, he accompanied the Earl of Leicester on an expedition to Holland, and greatly distinguished himself at the battle of Zutphen. In 1587, he was appointed master of the horse, and in the following year was made general of the horse, and installed knight of the garter. On the death of Leicester he succeeded him as chief favorite of the queen, a position which injuriously affected his whole subsequent life, and ultimately resulted in his ruin. While Elizabeth was approaching the mature age of sixty, Essex was scarcely twenty-one. Though well aware of the advantages of his position, and somewhat vain of the queen's favor, his constant attendance on her at court was irksome to him beyond all endurance; and when he could not make his escape to the scenes of foreign adventure after which he longed, he varied the monotony of his life at court by intrigues with the maids of honor. In 1589, without the queen's consent, he joined the expedition of Drake and Norreys against Portugal, but on June 4th was compelled to obey a letter enjoining him at his "utmost peril" to return immediately. Soon after his return occurred his famous duel with Sir Charles Blount, a rival favorite of the queen, in which the earl was disarmed and slightly wounded in the thigh. In 1590, Essex married the widow of Sir Philip Sidney, but in dread of the queen's anger he kept the marriage secret as long as possible. When it was necessary to avow it, her rage at first knew

no bounds, but as the earl did "use it with good temper," and "for her majesty's better satisfaction was pleased that my lady should live retired in her mother's house," he soon came to be "in very good favor." In 1591, he was appointed to the command of a force auxiliary to one formerly sent to assist Henry IV., of France, against the Spaniards; but after a fruitless campaign he was finally recalled from the command in January, 1592. For some years after this, most of his time was spent at court, where he held a position of unexampled influence, both on account of the favor of the queen, and from his own personal popularity. In 1596, he was, after a great many "changes of humor" on the queen's part, appointed along with Lord Charles Howard to the command of an expedition, which was successful in defeating the Spanish fleet, capturing and pillaging Cadiz, and destroying fifty-three merchant vessels. It would seem to have been shortly after this exploit that the beginnings of a change in the feelings of the queen toward him came into existence. On his return she chided him that he had not followed up his successes, and though she professed great pleasure at again seeing him in safety, and was ultimately satisfied that the abrupt termination of the expedition was contrary to his advice and remonstrances, she forbade him to publish anything in justification of his conduct. She doubtless was offended at his growing tendency to assert his independence, and jealous of his increasing popularity with the people.

Francis Bacon, at that time his most intimate friend, endeavored to prevent the threatened rupture by writing him a long letter of advice; and although perseverance in a long course of feigned action was for Essex impossible, he for some time attended pretty closely to the hints of his mentor, so that the queen "used him most graciously." In 1597 he was appointed master of the ordinance, and in the following year he obtained command of an expedition against Spain. He gained some trifling successes, but as the Plate fleet escaped him he failed of his main purpose; and when on his return the queen met him with the usual reproaches, he retired to his home at Wanstead. This was not what Elizabeth desired, and although she about this time conferred on Lord Howard the earldom of Nottingham for services at Cadiz, the main merit of which was justly claimed by Essex, she ultimately held out to the latter the olive branch of peace, and condescended to soothe his wounded honor by creating him earl marshal of England. That nevertheless the irritated feelings neither of Essex nor of the queen were completely healed was manifested shortly afterward in a manner which set propriety completely at defiance. In a discussion on the appointment of a lord deputy to Ireland, Essex, on account of some taunting words of Elizabeth, turned his back upon her with a gesture indicative not only of anger but of contempt, and when she, unable to control her indignation, slapped him on the face, he left her presence swearing that such an insult he would not have endured even from Henry VIII. In 1599, while Ulster was in rebellion, the office of lord deputy was conferred on Essex, but whether at his own express wish, or only after he was persuaded against his will to accept it, has been disputed. This point has an important bearing on the further question of the origin of Essex's treacherous designs. His campaign was an unsuccessful one, and by acting in various ways in opposition to the commands of the queen and the council, and suddenly leaving the post of duty with the object of privately vindicating himself before the queen, he laid himself open to charges more serious than that of mere incompetency. For these misdemeanors he was deprived of all his high offices, and ordered to live a prisoner in his own house during the queen's pleasure. Chiefly through the inter-

cession of Bacon his liberty was shortly afterward restored to him, but he was ordered not to return to court. For some time he hoped for an improvement in his prospects, but when he was refused the renewal of his patent for sweet wines, hope was succeeded by despair, and half maddened by wounded vanity, he made an attempt to incite a revolution in his behalf, by parading the streets of London with 300 retainers, and shouting, "For the queen! a plot is laid for my life!" These proceedings awakened, however, scarcely any other feelings than mild perplexity and wonder; and finding that hope of assistance from the citizens was vain, he returned to Essex House, where, after defending himself for a short time, he surrendered. After a trial—in which Bacon, who prosecuted, delivered a speech against his *quondam* friend and benefactor, the bitterness of which was quite unnecessary to secure a conviction entailing at least very severe punishment—he was condemned to death, and notwithstanding many alterations in Elizabeth's mood, the sentence was carried out February 21, 1601.

ESSEX, ROBERT DEVEREUX, THIRD EARL OF, the son of the preceding, was born in 1591. He was educated at Eton and at Merton College, Oxford. Shortly after the arrival of James I. in London, Essex was placed about the Prince of Wales, as a sharer both in his studies and amusements. At the early age of fifteen he was married to Francis Howard, daughter of the Earl of Suffolk, but on account of the latter's connection with Rochester (afterward the Earl of Somerset), the marriage was annulled in 1613. A second marriage, which he contracted in 1629 or 1630 with Elizabeth, daughter of Sir William Paulet, also ended unhappily. From 1620 to 1623 he served in the wars of the Palatinate, and in 1625 he was vice-admiral of a fleet which made an unsuccessful attempt to capture Cadiz. In 1639 he was lieutenant-general of an army sent by Charles against the Scotch Covenanters; but on account of the irresolution of the king no battle occurred, and the army was disbanded at the end of the year. Essex was discharged "without ordinary ceremony," and refused an office which at that time fell vacant, "all which," says Clarendon, "wrought very much upon his rough, proud nature, and made him susceptible of some impressions afterward which otherwise would not have found such easy admission." Having taken the side of the Parliament against Charles, he was, on the outbreak of the civil war in 1642, appointed to the command of the Parliamentary army. At the battle of Edgehill he remained master of the field, and in 1643 he captured Reading, and relieved Gloucester; but in the campaign of the following year, on account of his hesitation to fight against the king in person, nearly his whole army fell into the hands of Charles. In 1645, on the passing of the self-denying ordinance, providing that no member of parliament should hold a public office, he resigned his commission; but on account of his past services his annuity of £10,000 was continued to him for life. He died September 4, 1646, of a fever brought on by over-exertion in a stag-hunt in Windsor Forest.

ESSLINGEN, a town of Würtemberg, circle of the Neckar, is situated on the river of the same name, nine miles northeast of Stuttgart. The manufactures include woolen and cotton stuffs, hardware, and machinery. Esslingen was founded about the eighth century, became a free imperial city in 1209, and in 1801 was annexed to Würtemberg. The population in 1875 was 19,602.

ESTAING, CHARLES HECTOR, COMTE D', a French admiral, was born at the chateau of Ruvel, Auvergne, in 1729. He entered the army as a colonel of infantry,

and in 1757 he accompanied Count de Lally to the East Indies, with the rank of brigadier-general. In 1759 he was made prisoner at the siege of Madras, but was released on parole. Before the ratification of his exchange he obtained command of some vessels, and conducted various naval attacks against the English; and having, on his return to France in 1760, fallen accidentally into their hands, he was, on the ground of having broken his parole, thrown into prison at Portsmouth, but as the charge could not be properly substantiated he was soon afterward released. In 1763 he was named lieutenant-general in the navy, and in 1777 vice-admiral; and in 1778 he obtained the command of a fleet intended to assist the United States against Great Britain. In concert with the American generals, he planned an attack on Newport, preparatory to which he compelled the British to destroy some war vessels that were in the harbor; but before the concerted attack could take place, he put to sea against the English fleet, under Lord Howe, when owing to a violent storm, which arose suddenly and compelled the two fleets to separate before engaging in battle, many of his vessels were so shattered that he found it necessary to put into Boston for repairs. He then sailed to the West Indies where he captured St. Vincent and Grenada, and compelled the English fleet to take refuge in the harbor of St. Christopher. Despairing of the English leaving their place of refuge he set sail to attack Savannah, but all his attempts, as well as those of the Americans, against the town were repulsed with heavy loss, and he was finally compelled to retire. He returned to France in 1780. He was in command of the combined fleet before Cadiz when the peace was signed in 1783; but from that time his chief attention was devoted to politics. In 1787 he was elected to the assembly of the notables; in 1789 he was appointed commandant of the national guard; and in 1792 he was chosen admiral of the national assembly. Though in favor of national reform he continued to cherish a strong feeling of loyalty to the royal family, and on the trial of Marie Antoinette in 1793 bore testimony in her favor. On this account, and because of certain friendly letters which had passed between him and the queen, he was himself brought to trial, and was executed April 28, 1794.

ESTATE, in English law, has many meanings, the common element of which is property. A man's entire belongings constitute his estate: so much of it as consists of land and certain other interests associated therewith is his **REAL ESTATE**; the rest is his **PERSONAL ESTATE**.

For the special characteristics of different estates of land, see **REAL ESTATE**.

ESTATES OF THE REALM. The proper meaning of this phrase, as applied to the English Constitution, has been the subject of some dispute. It indicated a division of society into classes or orders, and in England these orders were the nobles, the clergy, and the commons. The same kind of division is found in Continental States.

ESTE, a town of Lombardy, in the delegation of Padua, is beautifully situated at the southern extremity of the Euganean Hills, on the canal of Monselice. It has a very antique and picturesque appearance; its houses are mostly of mediæval date; and it possesses some ancient buildings of considerable interest.

ESTE, one of the oldest princely houses of Italy. Their genealogy, according to Muratori, can be traced back to the small princes who governed Tuscany under the Carolingians, and who some time afterward received certain districts or counties from them in fief. They were called Este after the town of that name, and the title Marquis of Este was first borne by **ALBERT**

AZZO II., who married Kunitza or Kunigonda, sister of Welf or Guelph III., Duke of Carinthia.

ESTELLA, a town of Spain, in the province of Navarre, on the Ega, twenty-five miles southwest of Pamplona.

ESTEPA, a town of Spain, in the province of Seville, is situated on the north side of Mount San Francisco, sixty miles east-southeast of Seville.

ESTEPONA, a maritime town of Spain, in the province of Malaga, is situated on the Mediterranean, twenty-five miles east-northeast of Gibraltar.

ESTERHAZY. See **ESZTERHAZY**.

ESTHER. The Book of Esther relates how a Jewish maiden, Esther, a foster-daughter of Mordecai, was raised to the position of queen by the Persian King Ahasuerus (Xerxes) after he had divorced Vashti; next, how she and her uncle Mordecai frustrated Haman's resolution to extirpate the Jews out of the Persian Empire; how Haman fell, and Mordecai was advanced to his place; how Esther obtained the king's permission for the Jews to destroy all who might attack them on the day which Haman had appointed by lot for their extirpation; and lastly, how a festival was instituted to commemorate their deliverance. Its main object is to account for the origin of the feast of Purim, which from its cradle in the Persian capital had gradually made its way into other countries.

ESTHONIA, "the frontier country," one of three Baltic or so-called German provinces of Russia, is bounded on the north by the Gulf of Finland, on the east by the government of St. Petersburg, from which it is separated by the river Narowa, on the south by Livonia, and on the west by the Baltic.

ESTIENNE, **STEPHANUS**, or **STEPHENS**, a celebrated French family of printers. See **STEPHENS**.

ESTOPPEL, in law, is where a party in litigation is not permitted to assert or deny something, when such assertion or denial would be inconsistent with his own previous statements or conduct. Estoppel is said to arise in three ways—(1) by record or judgment, (2) by deed, and (3) by matter *in pais* or conduct.

ESTREMADURA, a province of Portugal. The river Tagus divides it into two nearly equal parts, the northern being the more mountainous, but at the same time the more fertile of the two.

ESTREMADURA, an old province of Spain.

ESTREMOZ, a town of Portugal, in the province of Alemtejo. Population about 6,600.

ESZEK, a fortified royal free town of Hungary, province of Croatia-Slavonia, situated on the right bank of the Drave, thirteen miles from its confluence with the Danube.

ESZTERHAZY, the name of an influential Hungarian family, which was ultimately raised to princely rank. Of these the best-known was Prince Paul Anthony (1786–1866).

ETAH, a district and town of British India, in the lieutenant-governorship of the northwestern provinces, and included in the division of Agra. **ETAH TOWN** is the capital of the district.

ETAMPES, or **ESTAMPES**, a town of France, capital of an arrondissement of the same name in the department of Seine-et-Oise.

ETĀWAH, a district and city of British India, in the lieutenant-governorship of the northwestern provinces, and included in the division of Agra. **ETĀWAH TOWN**, the capital of the district, is picturesquely situated amongst the ravines on the bank of the Jumna, seventy miles southeast of Agra. Its population amounts to 30,549 souls. Deep fissures intersect the various quarters of the town, over which broad roads connect the higher portions by bridges and embankments.

ETCHMIADZIN, or **ITSMIADSIN**, a town and monastery in the Russian government of Erivan, famous as the seat or the Catholicos or primate of the Armenian church. It is situated in the plain of the Aras, about 2,985 feet above the sea, thirty miles north of Mount Ararat.

ETEOCLES, a mythical king of Thebes, son of Œdipus and Jocasta.

ÆTHELBERT, or **ÆTHELBERHT**, King of Kent, ascended the throne in 560. In 568 he was defeated by the Saxons, and his authority limited to Kent, but ultimately he conquered the Saxons of Middlesex and Essex, and about 590 he was acknowledged as over-lord as far north as the Humber. About 575 he married Bertha or Berceta, daughter of the Frankish king Charibert. The Franks had already been converted to Christianity, and when Pope Gregory the Great heard that a Frankish princess was married to the King of Kent, he seized the opportunity to send Augustine to attempt the conversion of the Anglo-Saxons. In 597 Augustine and his companions landed in the Isle of Thanet, and on learning of their arrival Æthelbert, prompted doubtless by Bertha, at once invited them to an interview. Not being certain whether they might not use enchantments against him, he received them, for greater security, in the open air; and after listening to a long sermon from Augustine, he was so far impressed, that although not prepared at once to forsake his old religion, he granted liberty to the monks to preach to his people. According to the accounts that have been handed down, their success was almost unprecedented, and as many as 10,000 baptisms are said to have taken place in a single day. Very shortly afterward Æthelbert gave in his adhesion to Christianity, and immediately all the inhabitants of Kent followed his example. He gave up his palace for the monks to live in, and adjoining it he built a church, on the site of which he afterward erected the cathedral of Canterbury. He died in 616, and was canonized, his day being the 24th of February.

ÆTHELRED (or **ÆTHELRED**) II., surnamed the Unready, an Anglo-Saxon king, the son of Edgar and Elfrida, was born in 968. On the murder of Edward the Martyr in 979, Æthelred succeeded him on the Anglo-Saxon throne. He is said to have owed his surname, "Unready," to Dunstan, who, even when he placed the crown on Æthelred's head, prophesied that during his reign, on account of the sins of Elfrida, evils should fall upon the English such as they had never yet suffered. Such evils did fall upon them, and were doubtless chiefly due to the king. Careless of everything but his immediate comfort, or the gratification of an immediate whim, and listless and fond of ease, he allowed his kingdom and himself to be managed by worthless favorites, whose acts of open treachery were not only allowed to pass unpunished, but seemed almost to form steps in their ladder of advancement to special influence and favor with the king.

The successes attending the Danish invasions in the reign of Æthelred were due almost wholly to three causes—the unpreparedness of the Anglo-Saxons, the treachery of the earls, and the failure of the king to follow up victories which were often won with no special preparation, and without adequate leaders. About two years after Æthelred mounted the throne the Danish invasions recommenced, but it was not till a later period that their inroads assumed the serious aspect of an attempt to conquer the Anglo-Saxon kingdom. In 988 they were defeated at Watchet in Somersetshire, and in 991 at Maldon, immediately after which latter victory, Æthelred purchased peace from his defeated enemies by money raised through means of the oppressive tax known

as the "Danegeld." The Danes were allowed to stay in England, and they on their part agreed to help Æthelred against any other foreign fleet that might attack him; but for some reason now unknown, a dispute arose in 992, and in a battle between the rival fleets, the Anglo-Saxons, notwithstanding the treachery of Elfric, were again victorious. After this the Danes sailed to the north of England and ravaged both sides of the Humber. In 994 Swend, King of the Danes, and Olaf, King of the Norwegians, combined their forces and attacked London, but their attempt was completely frustrated by the valor of the citizens; and they sailed away to accomplish the easier task of ravaging the southern coasts, when Æthelred as usual did nothing to oppose them, but bought them off with a large sum of money. His efforts at conciliation were completely successful with Olaf, who, after being converted to Christianity, and adopted by Æthelred as his son, remained faithful ever afterward to his promise of friendship. In the years 997, 998, and 999 the Danes ravaged the coasts of Wessex, Sussex, and Kent. In 1000 Æthelred, energetic at the wrong time and for wrong objects, invaded Normandy, but suffered a disastrous defeat. He concluded a treaty with that country soon afterward, and in 1002 married Emma, daughter of Richard, Duke of Normandy. In the spring a treaty had been concluded with the Danes, but in the winter of the same year, Æthelred suspecting that they were plotting treachery, ordered a general massacre of all the Danes in England. Among others murdered was Gunold, sister of Swend; and the Danish king, to revenge her death and that of his countrymen, invaded the coast of Devonshire with a large force. He met with scarcely any opposition, and committed the usual ravages till 1007, when peace was concluded by Æthelred's consenting, as at other times, to the payment of a large sum of money. In 1009 Æthelred collected the "largest fleet that had been seen in the reign of any king," but it was soon afterward nearly wholly destroyed by a violent storm, just before the Danes renewed their invasion. Æthelred, though he had gathered an army, was dissuaded from attacking them by Edric, and afterward the English, through the treachery of their leaders, suffered a series of defeats; but in 1012 peace was again bought, and Thurkill, one of the Danish leaders, entered the English service. In 1013 Swend, with a more formidable fleet than any he had yet collected, sailed up the Humber, and then marched southward to London; but meeting there with strenuous resistance, he was compelled to give up the attack and marched to Bath. Here he was proclaimed king, apparently by the Witan, and with the general consent of the English people, who were doubtless wearied of Æthelred's incompetency, of the treachery of the nobles, and of the oppressive taxes which had been paid for no purpose. London itself soon acknowledged the Danish king, and Æthelred, after for a time taking refuge in Thurkill's fleet, escaped to Normandy. Swend died in February, 1014, and on his death Æthelred was recalled by the Witan, on the promise of ruling better in future. In the same year he defeated Cnut, son of Swend, but in 1015 Cnut renewed his attack with a large fleet, and being joined by the traitor Edric, ravaged Wessex and Mercia, and was preparing to attack London, when Æthelred died, April 23, 1016.

ÆTHELWULF, or **ÆTHELWULF**, an Anglo-Saxon king, succeeded his father Egbert about 836. His reign, like that of his father, was almost wholly occupied with wars against the Danish invaders. For a long time he held them in check, and when in 851 they took Canterbury and London, and defeated Beorhtwulf, King of the Mercians, he met them at Ockley in Surrey, and there "made the greatest slaughter among the heathen

army that we have heard tell of unto the present day, and there got the victory." But the Northmen were persevering in their efforts; and it is stated that in 855 they, for the first time, remained over winter in Sheppey. In the same year Ethelwulf made a journey to Rome, accompanied by his youngest and favorite son Alfred, to get the latter consecrated as his successor; and as his first wife, Osburga, had been for some time dead, he delayed a few months in France to marry Judith, daughter of the king of the Franks. Ethelbald, his eldest surviving son, indignant at his youngest brother being preferred to him as successor to his father's throne, took advantage of his father's absence to stir up a revolution against him, and obtained the support of so powerful a party that an unnatural civil war was only prevented by Ethelwulf agreeing to grant to his son the government of Wessex, he himself being recognized as over-lord, and retaining the rest of the kingdom. He died in 858.

ETHER, the *Æther* or *Æther Sulphuricus* of pharmacy, is a colorless, volatile, highly inflammable liquid, of specific gravity 0.723, boiling-point when pure 35.6° C, and fusing-point -31° C. It has a strong and characteristic odor, and a hot, sweetish taste, is soluble in ten parts of water, and in all proportions in alcohol, and dissolves bromine, iodine, and, in small quantities, sulphur and phosphorus, also the volatile oils, most fatty and resinous substances, gun-cotton, caoutchouc, and certain of the vegetable alkaloids. The vapor mixed with oxygen or air is violently explosive. See ANÆSTHETICS. See also CHLOROFORM.

ETHER, or *Æther*, probably I burn, a material substance of a more subtle kind than visible bodies, supposed to exist in those parts of space which are apparently empty.

The hypothesis of an *æther* has been maintained by different speculators for very different reasons. To those who maintained the existence of a plenum as a philosophical principle, nature's abhorrence of a vacuum was a sufficient reason for imagining an all-surrounding *æther*, even though every other argument should be against it. To Descartes, who made extension the sole essential property of matter, and matter a necessary condition of extension, the bare existence of bodies apparently at a distance was a proof of the existence of a continuous medium between them.

When light travels through the atmosphere it is manifest that the medium through which the light is propagated is not the air itself, for in the first place the air cannot transmit transverse vibrations, and the normal vibrations which the air does transmit travel about a million times slower than light. Solid transparent bodies, such as glass and crystals, are no doubt capable of transmitting transverse vibrations, but the velocity of transmission is still hundreds of thousand times less than that with which light is transmitted through these bodies. We are therefore obliged to suppose that the medium through which light is propagated is something distinct from the transparent medium known to us, though it interpenetrates all transparent bodies and probably opaque bodies, too.

The velocity of light, however, is different in different transparent media, and we must therefore suppose that these media take some part in the process, and that their particles are vibrating as well as those of the *æther*, but the energy of the vibrations of the gross particle must be very much smaller than that of the *æther*, for otherwise a much larger proportion of the incident light would be reflected when a ray passes from vacuum to glass or from glass to vacuum than we find to be the case.

We must therefore consider the *æther* within dense

bodies as somewhat loosely connected with the dense bodies, and we have next to inquire whether, when these dense bodies are in motion through the great ocean of *æther*, they carry along with them the *æther* they contain, or whether the *æther* passes through them as the water of the sea passes through the meshes of a net when it is towed along by a boat. If it were possible to determine the velocity of light by observing the time it takes to travel between one station and another on the earth's surface, we might, by comparing the observed velocities in opposite directions, determine the velocity of the *æther* with respect to these terrestrial stations. All methods, however, by which it is practicable to determine the velocity of light from terrestrial experiments depend on the measurement of the time required for the double journey from one station to the other and back again, and the increase of this time on account of a relative velocity of the *æther* equal to that of the earth in its orbit would be only about one hundred millionth part of the whole time of transmission, and would therefore be quite insensible.

The theory of the motion of the *æther* is hardly sufficiently developed to enable us to form a strict mathematical theory of the aberration of light, taking into account the motion of the *æther*. Professor Stokes, however, has shown that, on a very probable hypothesis with respect to the motion of the *æther*, the amount of aberration would not be sensibly affected by that motion.

The only practicable method of determining directly the relative velocity of the *æther* with respect to the solar system is to compare the values of the velocity of light deduced from the observation of the eclipses of Jupiter's satellites when Jupiter is seen from the earth at nearly opposite points of the ecliptic.

Faraday conjectured that the same medium which is concerned in the propagation of light might also be the agent in electromagnetic phenomena.

The properties of the electromagnetic medium are therefore as far as we have gone similar to those of the luminiferous medium, but the best way to compare them is to determine the velocity with which an electromagnetic disturbance would be propagated through the medium. If this should be equal to the velocity of light, we would have strong reason to believe that the two media, occupying as they do the same space, are really identical.

The undulatory theory, in the form which treats the phenomena of light as the motion of an elastic solid, is still encumbered with several difficulties.

We cannot suppose the constitution of the *æther* to be like that of a gas, in which the molecules are always in a state of irregular agitation, for in such a medium a transverse undulation is reduced to less than one five-hundredth of its amplitude in a single wave-length. If the *æther* is molecular, the grouping of the molecules must remain of the same type, the configuration of the groups being only slightly altered during the motion.

No theory of the constitution of the *æther* has yet been invented which will account for such a system of molecular vortices being maintained for an indefinite time without their energy being gradually dissipated into that irregular agitation of the medium which, in ordinary media, is called heat.

Whatever difficulties we may have in forming a consistent idea of the constitution of the *æther*, there can be no doubt that the interplanetary and interstellar spaces are not empty, but are occupied by a material substance or body, which is certainly the largest, and probably the most uniform body of which we have any knowledge.

Whether this vast homogeneous expanse of isotropic

matter is fitted not only to be a medium of physical interaction between distant bodies, and to fulfill other physical functions of which, perhaps, we have as yet no conception, but also, as the authors of the *Unseen Universe* seem to suggest, to constitute the material organism of beings exercising functions of life and mind as high or higher than ours are at present, is a question far transcending the limits of physical speculation.

ETHEREDGE, SIR GEORGE, an English dramatist, was born in or near London about the year 1636. He was a scion of an ancient and distinguished family of Oxfordshire. He was educated at Cambridge, but left the university early to travel in France and Flanders. His tastes were those of a fine gentleman, and he indulged freely in pleasure. Sometime soon after the Restoration he composed his comedy of *The Comical Revenge, or Love in a Tub*, which introduced him to Lord Buckhurst, afterward the Earl of Dorset. This was brought out at the Duke's Theater, in 1664, and a few copies were printed in the same year. The main edition of this play, however, was not issued until 1669. The sparring between Sir Frederick and the Widow introduced a style of wit hitherto unknown upon the English stage. The success of this play was very great, but Etheredge waited four years before he repeated his experiment. Meanwhile, he gained the highest reputation as a poetical beau, and moved in the circle of Sir Charles Sedley, Lord Rochester, and the other noble wits of the day. In 1668, he brought out *She Would if She Could*, a comedy in many respects admirable, full of action, wit, and spirit, but to the last degree frivolous and immoral. But in this play Etheredge first shows himself a new power in literature; he has nothing of the rudeness of his predecessors or the grossness of his contemporaries. We move in an airy and fantastic world, where flirtation is the only serious business of life. At this time Etheredge was living a life no less frivolous and unprincipled than those of his Courtlarks and Freemans. He formed an alliance with the famous actress Mrs. Barry; she bore him a daughter, on whom he settled £6,000, but who unhappily died in her youth. His wealth and wit, the distinction and charm of his manners, won him the general worship of society, and his temperament is best shown by the names his contemporaries gave him, of "gentle George" and "easy Etheredge." The age upbraided him for inattention to literature; and at last, after a silence of eight years, he came forward with one more play, unfortunately his last. *The Man of Mode, or Sir Fopling Flutter*, indisputably the best comedy of intrigue written in England before the days of Congreve, had an unbounded success. Besides the merit of its plot and wit, it had the personal charm of being supposed to satirize, or at least to paint, persons well known in London. After this brilliant success Etheredge retired from literature; his gallantries and his gambling in a few years, deprived him of his fortune, and he looked about for a rich match. In 1683, he met with a wealthy elderly widow, who consented to marry him if he made a lady of her. He accordingly got himself knighted, and gained her hand and her money. It is said that before this, about 1680, he had been sent on an embassy to Turkey; it is certain that in 1686 he was appointed resident-minister in the Imperial German Court at Ratisbon. He was very uncomfortable in Germany, and soled himself by writing amusing epistles in prose and verse to his friends in England. In 1689, he is believed to have died in Ratisbon in a tragical manner, for whilst conducting a party of friends to the stairs after a banquet at his house, he fell over into the court below and broke his neck. But his death occurred at the moment when England was convulsed

with revolution, and no one has preserved the exact date of it.

ETHERIDGE, JOHN WESLEY, a Wesleyan minister, and a writer on Church history and biblical literature, was born near Newport, Isle of Wight, February 24, 1804, and died in 1866.

ETHICS. It is not easy to define in a single phrase the subject commonly called Ethics in such a manner as to meet with general acceptance; as its boundaries and relations to cognate subjects are variously conceived by writers of different schools, and rather indefinitely by mankind in general. Nor does the derivation of the term help us much. Ethics originally meant that which relates to ("character"); the treatise of Aristotle's, however, to which the term was first applied, is not concerned with character considered simply as character, but with its good and bad qualities. Indeed, the antithesis of "good" and "bad," in some form, is involved in all ethical affirmation; and its presence constitutes a fundamental distinction between the science or study of ethics and any department of physical inquiry. Physics is concerned with what is, has been, or will be; ethics with what is "good," or what "ought to be," and its opposite. We must add, however, that the good that ethics investigates is "good for man," to distinguish it from universal or absolute good, which is the subject-matter of theology or ontology; and again, if we are to separate ethics from politics, we must introduce a further qualification, and define the former as the study of the Good or Wellbeing of men considered as individuals. Neither of these distinctions, however, should be taken to imply a complete division of subjects; and neither, it may be added, was reached at once and without effort in the development of ethical reflection. In Platonism we find Ethics and Ontology indissolubly blended; and, indeed, in almost every philosophical system in which the universe is contemplated as having an ultimate end or Good, the good of human beings is conceived as somehow closely related to this Universal Good. So again the connection between Ethics and Politics is naturally very intimate. We only know the individual man as a member of some society; what we call his virtues are chiefly exhibited in his dealings with his fellows, and his most prominent pleasures are derived from intercourse with them; thus it is a paradox to maintain that man's highest good is independent of his social relations, or of the constitution and condition of the community of which he forms a part. So, again, it would be generally admitted that a statesman ought to aim at promoting the wellbeing of his fellow citizens considered as individuals; and if so, the investigation of the particulars of such wellbeing must be an integral part of politics. Still it is manifest that the good of an individual man can be separated as an object of study from the good of his community; so that the ethical point of view has to be distinguished from the political, however large a field the two studies may have in common.

When, however, we thus isolate in thought the individual man from his polity, the close connection of Ethics with Psychology becomes manifest. It is plain that the chief good of man cannot consist in anything external and material, such as wealth; nor even in mere bodily health and wellbeing, which experience shows to be compatible with extreme badness and wretchedness. And though it is perhaps true that goodness is commonly attributed to men from the consideration of the external effects of their conduct; still it is generally held that a certain state of the agent's mind, a certain quality of disposition, motive, intention or purpose, is essential to the perfect moral goodness of an action. Thus all (or almost all) ethical schools would agree that the main object of their investi-

tigation must belong to the psychical side of human life; whether they hold that ultimate good is to be found in psychical existence regarded as merely sentiment and emotional, identifying it with some species of desirable feeling or pleasure, or the genus or sum of such feelings, or whether they rather maintain that wellbeing of the mind must lie solely or chiefly in the quality of its activity. And when we attempt to work out either view into a clear and complete system, we are led inevitably to further psychological study, in order to examine different kinds and degrees of pleasure and pain, determine the nature and mutual relations of the different virtues or good qualities of character, and their opposites. So again, in discussing the fundamental question as to what is ultimately good or desirable, moralists are led to observe carefully what men actually do desire and aim at, and thus to analyze fully the process of voluntary action, as well as the emotional states that precede and prompt to it. In fact it will appear that all important ethical notions are also psychological, except the fundamental antithesis of "good" and "bad," or "right" and "wrong," with which psychology is not primarily concerned, any more than physics.

The two antitheses just mentioned are frequently regarded as identical. And in fact it does not matter for ordinary purposes whether we speak of "right" or "good" conduct, "wrong" or "bad" motives. The common notion of what is Good for a human being—even if we restrict it to what is "ultimately" good, or "good in itself" and not merely as a means to some further end—includes more than the common notion of what is Right for him, or his Duty. No doubt it is commonly believed that it will be ultimately best for a man to do his duty, and that this will promote his real Interest or Happiness; but it does not follow that the notions of duty and interest are to be identified, or even that the connection between the two may be scientifically demonstrated. The connection is often regarded rather as a matter of faith; indeed many would hold that it is not undesirable that it should be somewhat obscure, in order that duty may be done as duty, and not from a mere calculation of self-love.

Thus we arrive at another conception of ethics, in which it is viewed as concerned primarily with the principles of duty or the moral code, and only secondarily—or perhaps not at all—with the relation of duty to the agent's private happiness. On this view the study connects itself with theology, if the rules of duty are regarded as a code of divine legislation; and apart from this reference it has a close affinity to rational or abstract jurisprudence. We might distinguish this as the modern view of ethics in contrast with the former, which was that of ancient Greek philosophy generally—the transition between the two being due chiefly to the influence of Christianity, but partly also to that of Roman jurisprudence. It is true that the thought of "the gods' unwritten and unaltering law" was not by any means absent from the moral reflection of Greece: still, the idea of Law was not taken as the ultimate and fundamental notion in any of the ancient ethical systems. These all proceed on the assumption that man, as a reasonable being, must seek his own highest good in this earthly life, and therefore that any laws he has to obey must be demonstrated to be means to the attainment of this good, or particulars in which it is realized. On this point the change produced by Christianity is even more striking, if we consider its more general effects rather than its influence on the minds that were most completely penetrated by its religious spirit. The true Christian saint lived even on earth, no less than the pagan philosopher, a life which he regarded as intrinsically preferable to all other modes of earthly existence;

and, like the Platonic philosopher, a life of which practical virtue was not so much the essence as the outward expression. Still even for the saint this earthly life afforded but an imperfect foretaste of the bliss for which he hoped; and in the view of more ordinary Christians, the ultimate good of man vanished from the scrutiny of mere ethical speculation into the indefinite brightness of a future life of happiness, supernaturally bestowed by God as a reward for obedience to his laws. Or rather, perhaps, by the mass of Christians, the moral code was more commonly regarded, in still closer analogy to human legislation, as supported by penal sanctions; since in all ages of Christianity the fear of the pains of hell has probably been a more powerful motive to draw men from vice than the hope of the pleasures of heaven. On either view the ultimate weal or ill of human beings became something that might be imagined and rhetorically described, but not definitely known or scientifically investigated; and thus the subject-matter of ethics defined itself afresh as Moral Law, a body of rules absolutely prescribed, and supplying a complete guidance for human conduct, though not claiming to contain an exhaustive statement of human good.

Within the Christian church, through the early and middle ages of its history, it naturally fell to theologians to expound, and to priests to administer this code of divine legislation. But when a more philosophical treatment of ethics was introduced by the schoolmen, the combination in the code of two elements, one distinctively Christian, and the other cognizable by natural reason and binding on all men apart from revelation, began to be clearly seen; and an adequate theory of this second element seemed to be supplied by the development of theoretical jurisprudence that followed on the revival, in the twelfth century, of the study of Roman law. In the later treatment of legal principles in Rome, the notion of a law of nature had become prominent; and this notion was naturally and easily adapted to represent the element in morality that was independent of revelation. It is true that the natural law of the philosophical jurists did not concern itself primarily with duties, but rather with rights, and so with the relative and negative duties that are involved in the notion of rights; hence it could not properly be identified with more than a portion of the moral code. This portion, however, is of such fundamental importance that the difference we have noticed has been frequently overlooked, and Morality not distinguished from Natural Law, except by the further control that the former claims over the inner springs of voluntary action.

ETHIOPIA, or ÆTHIOPIA, the ancient classical designation of a country and kingdom of Northeastern Africa, lying immediately to the south of Egypt, and extending eastward to the Red Sea, but with no definitely marked boundaries in any other direction. According to the "folk's etymology" of the Greeks, the name was equivalent to the "land of the scorched faces," and this supposed derivation doubtless reacted on the employment of the word, and increased the vagueness of its meaning; but in all probability it was really, like the name of Egypt itself, a corruption of some Egyptian original now unknown. The knowledge of this country possessed by the earlier Greeks was extremely slight, and greatly corrupted by mythical additions. To the generation among whom the Homeric poems took their rise the Ethiopians were the remotest inhabitants of the world, and received the gods themselves as familiar guests. They are twice mentioned by Hesiod, who calls their king by the Egyptian name of Memnon. Herodotus acquired a considerable amount of information about their connection with Egypt, and Democritus is said to have traveled as far south as

Meroe, and to have written an account of its hieroglyphics; but it was not until the invasion of Ptolemy Philadelphus that the Greeks began to be familiar with the country. From Herodotus downward we hear of a great many separate tribes, most of whom are designated by Greek epithets descriptive of some real or supposed peculiarity, as the Fish-eaters, the Long-livers, the Troglodytes or Cave-dwellers. To only a few of them can their proper geographical position be assigned, and of none of them can we with certainty determine the ethnographical affinities. The name Ethiopian, indeed, must be regarded not as an ethnographical but as a politico-geographical designation. It has been applied, both in ancient and modern times, to peoples of different race who have occupied the country to the south of Egypt and the southwestern part of Arabia, much in the same way as the name Englishman is used by foreigners for any native of the British Islands, whether he be of Germanic or Celtic descent. The inhabitants of Meroe or Southern Ethiopia were a reddish-brown people, and are so represented on the monuments; but they were surrounded by, and perhaps intermingled with, a number of dark-skinned tribes, whose effigies indicate affinity with the negro. Modern research enables us to trace the main outlines of Ethiopian history, but with the same indefiniteness of chronology which attaches to so much of the history of Egypt. Of its earlier epochs we are profoundly ignorant. The Greeks had a tradition that the Egyptians were indebted to the Ethiopians for the first impulse of their civilization; but recent investigators maintain that the relation between the two peoples must have been exactly the reverse of this, and their view is supported by the fact that as we advance up the river the monuments are evidently of later date and poorer workmanship, as if the southern builders were only second-rate imitators of their northern predecessors.

The supremacy of Tuthmosis III. seems to have been widely acknowledged throughout the Ethiopian region. Amenhotep III., Horemhebi, and the more warlike Rameses or Ramessu I., are all mentioned as in possession of the Ethiopian supremacy, but as engaged from time to time in wars within the region. During the XXII. Egyptian Dynasty the independence and power of the principal Ethiopian potentate had increased so much that Azerch-Amen, of Napata, the Zerah of the Biblical narrative, conquered all the valley of the Nile, and advanced against Syria and Judah; the defeat, however, inflicted on him at Zephathah by King Asa was so complete that he withdrew again within his original frontiers.

The Persian invader Cambyses, who brought the Egyptian independence to a close, failed in his attack on the Ethiopian kingdom; but the change in the condition of Egypt helped to open up Ethiopia to Greek enterprise and influence. Under the Ptolemies various Greek colonies were established on the Ethiopian coast of the Red Sea, and Greek learning was introduced into the Ethiopian court. Ptolemy Philadelphus invaded the country, but came to terms with the king, Ergamenes, who is reported to have relieved the royal power from the ecclesiastical bondage under which it had long suffered, by putting the priests to death and plundering their temples. In the reign of Augustus, C. Petronius had to defend the Egyptian frontiers against an invasion under Queen Candace; in the second campaign he extorted the submission of the country, which continued nominally Roman till the reign of Diocletian. About the first century of the Christian era a new kingdom seems to have grown up at Axum. In the sixth century the Christians of Yemen, being oppressed by the dynasty of Jewish proselytes who at that time held the

throne of the Himyarites, asked and obtained the assistance of the Axumite monarch.

ETHIOPIAN, or Geez, is the name given in modern philology to a language of the Semitic family, which is still used in Abyssinia for literary and ecclesiastical purposes. It shows the closest affinity in grammatical structure with Arabic.

The literature of the Ethiopian language, like that of Armenian, is almost exclusively Christian, and, indeed, with comparatively slight exceptions, theological or ecclesiastical.

ETHNOGRAPHY AND ETHNOLOGY Ethnography embraces the descriptive details, and ethnology the rational exposition, of the human aggregates and organizations known as hordes, clans, tribes, and nations, especially in the earlier, the savage and barbarous, stages of their progress. Both belong to the general science of anthropology or the natural history of mankind, being related to it as parts to a whole. Ethnography and ethnology, indeed, run up into anthropology as anthropology does into zoology, and zoology into biology. No very sharp line can be drawn between these two sciences themselves, their differences being mainly those between the particular and the general, between the orderly collection of local facts, and the principles according to which they may be grouped and interpreted. Ethnographers deal with particular tribes, and with particular institutions and particular customs prevailing among the several peoples of the world, and especially among so-called savages. Ethnologists bring simultaneously under review superstitions, legends, customs, and institutions which, though scattered in distant regions of the earth, have some common basis of significance. Ethnography and ethnology run as easily one into another, as the two sections of general anthropology, viz., (1) *anthropology* proper, as expounded by anatomists and physiologists, who deal with the different races of man, their elements, modifications, and possible origin; and (2) *demography*, which, as constituted by the researches of Quetelet and his friends and disciples, as Farr, Galton, Guillard, and Bertillon, treats of the statistics of health and disease, of the physical, intellectual, physiological, and economical aspects of births, marriages, and mortality.

Ethnography, ethnology, and anthropology are interwoven with philology, jurisprudence, archæology, geography, and the various branches of history. A fact may require to be investigated successively by linguists, anatomists, and mathematicians. In current language ethnography and ethnology are often used indiscriminately, but if a distinction is to be made between them, an instinctive perception teaches us to speak of ethnographic facts and ethnological theories, of ethnographic literature and ethnological science—ethnology being related to ethnography as the wine to the grape.

ETNA. Mount Etna, one of the most celebrated volcanoes in the world, is situated on the eastern seaboard of Sicily. Its position was first accurately determined, in 1814, by Captain Smyth.

There can be no doubt that the name of Etna means to burn. This name was known to Hesiod. While the poets on the one hand had invested Etna with various supernatural attributes, and had made it the prison of a chained giant, and the workshop of a swart god, Lucretius and others endeavored to show that the eruptions and other phenomena of the mountain could be explained by the ordinary operations of nature.

The great eruption of 1669 was described at length by the naturalist Borelli in the year of its occurrence.

As the eruption was the most considerable eruption of modern times, it attracted a good deal of attention, and was described by several eye-witnesses. In the

sacristy of the cathedral of Catania there is a curious wall-painting, which represents broad red streams of lava descending from the Monti Rossi and overwhelming the city. During the last sixty years the height of the mountain has been practically constant. In 1815, Captain Smyth determined it to be 10,874 feet. In 1826, Sir John Herschell, who was unacquainted with Smyth's results, estimated it at 10,872½ feet. The radius of vision from the summit is very variously stated. Smyth gives it as 150.7 miles. This radius gives a horizon 946.4 miles in circumference, and an included area of 39,900 square miles—an area larger than that of Ireland.

There are two cities, Catania and Aci Reale, and sixty-three towns or villages on Mount Etna. It is far more thickly populated than any other part of Sicily or Italy; for, while the population of Italy per square kilometer is 90, and of Sicily 88, that of the habitable zone of Etna is 550. No less than 300,000 persons live on the mountain.

The general aspect of Etna is that of a pretty regular cone with very gentle slopes covered with vegetation, except near the summit. The regularity is broken on the east side by a slightly oval valley, four or five miles in diameter, called the Val del Bue. The surface soil, which consists of decomposed lavas, is extremely fertile, although of course large tracts of land are covered by recent lavas, or by those which decompose but slowly. In this region the vine flourishes, and abundance of corn, olives, pistachio nuts, mulberries, oranges, lemons, figs, and other fruit trees. The breadth of the cultivated zone is about two miles on the north, east, and west, and nine or ten miles on the south, if we take for the base of the mountain the limits proposed above.

The *Woody Region* commences where the Cultivated Region ends, and it extends as a belt of varying width to an approximate height of 6,300 feet. It is terminated above by a circle, having a radius of about a mile and a half from the great crater. There are fourteen separate forests in this region—some abounding with oak, beech, pine, and poplar, others with the chestnut, ilex, and cork tree. The celebrated *Castagno di Cento Cavalli*, one of the largest and oldest trees in the world, is in the forest of Carpinetto, on the east side of the mountain, five miles above Giarre.

The Desert Region is embraced between the limit of 6,300 feet and the summit. It occupies an area of about ten square miles, and consists of a dreary waste of black sand, scorix, ashes, and masses of ejected lava. In autumn, winter and spring, it remains permanently covered with snow, and, even in the height of summer, snow may be found in certain rifts near the summit.

A remarkable feature of Etna is the large number of minor cones which are scattered over its sides. They look small in comparison with the great mass of the mountain, but in reality some of them are of large dimensions.

The best period for making the ascent of Etna is between June and September, after the melting of the winter snows, and before the falling of the autumnal rains. In winter there are frequently nine or ten miles of snow, stretching from the summit downward, the paths are obliterated, and the guides sometimes refuse to accompany travelers. Moreover, violent storms often rage in the upper regions of the mountain, and the wind acquires a force which it is difficult to withstand, and is at the same time piercingly cold.

The crater—a vast abyss, nearly 1,000 feet in depth, is shut in by precipitous sides. Its dimensions vary, but it is now between two and three miles in circumference. Sometimes it is nearly full of lava, at other times it appears to be bottomless. At the present time it is

like an inverted cone; its sides are covered with incrustations of sulphur and ammonia salts, and jets of steam perpetually issue from crevices in its sides. Near the summit is found a deposit, several inches in thickness, of a white substance, apparently lava, decomposed by the hot effluent gases. Hydrochloric acid is said to frequently issue from the crater; the most abundant gases appeared to be sulphurous acid and steam. The interior of the crater reminds one, in many respects, of the Solfatara, near Puzzuoli.

There is a great similarity in the general character of the eruptions of Etna. Earthquakes presage the outburst; loud explosions are heard; rifts open in the sides of the mountain; smoke, sand, ashes, and scorix are discharged; the action localizes itself in one or more craters; cinders are thrown out, and accumulate around the crater in a conical form; ultimately, lava rises through the new cone, frequently breaking down one side of it, where there is least resistance, and flowing over the surrounding country. Then the eruption is at an end. Out of the seventy-eight eruptions, a comparatively small number have been of extreme violence, while many have been of a slight and harmless character.

According to Lyell, Etna is rather older than Vesuvius—perhaps of the same geological age as the Norwich Crag. The earliest eruptions of Etna are older than the Glacial period in Central and Northern Europe. Lyell concludes that, although no approximation can be given of the age of Etna, "its foundations were laid in the sea in the newer Pliocene period;" he further concludes that there once existed a second great crater of permanent eruption.

Such are the principal facts in the history of a volcano, justly called, *famoso, immenso, terribile*, which excited the wonder of all nations, in all ages of the history of the world.

ETON, a village in Buckinghamshire, is situated on the left bank of the Thames, twenty-one miles west-southwest of London, and is connected with Windsor, on the opposite bank of the river, by a cast-iron bridge, erected in 1824. Eton is chiefly celebrated for its college, founded by Henry VI. in 1441, and endowed mainly from the revenues of the alien priories which were suppressed by Henry V.

ETRURIA. When or by what road the Rasena (Etrusci) reached their permanent seats in Etruria proper is by no means certain, though from the fact of their principal towns being well inland, from the tradition of having been previously settled in Umbria, from the survival of their peculiar language down to late times among a people of the Rhetian Alps, and from the discovery of works of art in this district corresponding with the earliest Etruscan remains, there would seem to be considerable probability in the theory of their first settlement in Italy having been about the mouth of the Po, whence their progress would be through Umbria and across the Apennines. At the same time, it is to be remembered that, though "Rasena" was the national name of this people, yet there is strong evidence for supposing that the nationality, as we know it under the classical names of Etrusci or Tyrrheni, included another race which, if not nearly allied to the Greeks, had a singularly similar disposition toward the arts, such as it is hardly possible the original Rasena could have brought with them directly from the north.

It is common enough to find mention of the twelve cities of Etruria, but nowhere are their respective names recorded. The probability is that in process of time this or that city fell out of the league, and was replaced by the towns of more recent growth, till in the end there were at least seventeen presumable claimants

for the title of one of the twelve. As to the confederation of twelve cities in Etruria proper, and the political principles on which it was founded, nothing is positively known, except that the principles were essentially aristocratic, much as in early Rome under the kings. The kings were elective for life, and were held in check by the *principes* who represented the real power of each state. In national enterprises one of the kings was chosen for supreme command, having a lictor from each city. The surroundings of official dignity found afterward in Rome, the purple robe, the *prætexta*, the twelve lictors and fasces, the apparitores, the curule chair, and triumphal processions, were derived from Etruria, and indicate the nature of her constitution. The representatives met at the temple of Voltumna, the locality of which is not known, apparently in spring; but it would seem that, in fact, the confederation was far from strictly maintained, at any rate in the matter of external policy. For internal affairs they had certain books in which they were instructed as to the founding and consecration of public or religious buildings, the distribution of the people into tribes, *curiæ* and *centuriæ*, the constitution of armies, and the management of everything pertaining to peace or war. These books were divided into three sections, the third being those to which reference has just been made. The other two were devoted to divination, an art in which the Etruscans surpassed all other nations.

Tarchon was the founder of Tarquinii, and from this town proceeded the other cities and their organization.

First in importance among the Etruscan cities was *Veii*, about eleven miles from Rome, its great rival and ultimate victor. Strong by its natural position on a high cliff, and fortified with massive walls, rich in its own territory, and commanding the assistance of its subject towns, Sabata, Sutrium, Nepete, and Capena, it maintained an almost constant state of war with Rome from the legendary times of Romulus down to its capture by Camillus, 396 B.C., after which, by a decree of the Roman senate, it was forbidden to be inhabited.

Scarcely less important and like it also undoubtedly one of the twelve cities, was *Tarquinii*, now Corneto, the port by which great trade was carried on. The story runs that among those who preferred exile to the tyranny of Cypselus in Corinth in the early part of the seventh century B.C., was a wealthy merchant, Demaratus, who, accompanied by certain artists with mythical names settled in Tarquinii, which it is to be presumed was then sufficiently advanced in civilization to offer prospects of comfort, and to have been known to the traders of Corinth at least. Demaratus married a lady of Tarquinii, and had a son Lucumo or Lucius, who, though rich, suffered from being looked down on as a foreigner, and, to escape this, migrated to Rome, where in time he rose to the highest office of king, under the title of Tarquinius Priscus, and compelled the submission of the whole of Etruria, the token of which was the ensignia of the twelve fasces, representing the twelve cities. Toward the close of the second Punic war, when the Etruscan cities had to furnish Scipio's fleet each with its staple commodity, Tarquinii supplied sail-cloth.

Corn and other provisions were supplied by *Cære*, a town which, if less famous in war than the two already described was better known in the arts of peace. As evidence of the high antiquity of the arts in Cære, there is the statement of Pliny that paintings existed there older than the foundation of Rome. It was said to have been the last refuge of the Tarquins, and in confirmation of this is the modern discovery of a large sepulcher belonging to a family of that name, as seen

from the numerous inscriptions in it. Little remains except *tumuli* and sepulchers.

In close political relationship to Veii, and probably reckoned as one of the twelve cities, though its population was not purely Etruscan, was *Falerii*, originally on a high bare rock, but afterward under Roman compulsion transferred to the broad plain which stretches to the Tiber.

One of the twelve cities also was *Volci*, though the historical notices of it are but few, and leave no impression of any great power. Yet its remains, as discovered in numerous sepulchers, show that it must have been an important city. From the sepulchers of Volci has been obtained a vast number of antiquities, not a few of which are of the first importance for the history of art in Etruria, and will be afterward referred to. *Volsinii* was one of the most powerful and warlike of the Etruscan states. *Clusium* had been founded by the Umbrians, but became one of the principal cities of Etruria, being apparently at the height of its fame under the rule of its king, Porsena, who, to reinstate Tarquinius Priscus, made that march to Rome (505 B.C.) with which are associated the undying legends of Roman heroism in the persons of Horatius, Scaevola, Cloelia, and Publicola. Before this we find Clusium joined with other Etruscan cities on the side of the Latins against Tarquinius Priscus. Afterward it was the assistance given by Rome to Clusium which drew down the Gauls on the former in 389 B.C.

At the close of the second Punic war Clusium furnished corn and fir for ship-building to the Roman fleet. *Arretium* was one of the twelve cities, but famous chiefly in comparatively recent times. In 301 B.C. the citizens rose against the tyranny of their great family, the Cilnii, and drove them to exile in Rome, where their cause was taken up with this practical result, that a Roman army defeated the Arretines at Russellæ. Afterward the city joined in league with the Gauls and Umbrians against Rome, but again was defeated. Next it was besieged by the Gauls. There is no record of its final submission to Rome. In the second Punic war it furnished corn, implements, and material of war for the Roman fleet. During the civil wars it took the side of Marius, and would in consequence have lost all rights but for the intercession of Cicero. Conspicuous still for its stupendous walls and towers, commanding a high bare rock, is *Cortona*, where everything that remains is in harmony with the tradition of its extraordinary antiquity. Like *Perusia* it had once been an Umbrian city, and like it also one of the twelve states of Etruria. Parts of the walls of Perugia remain, and many objects of great interest have been found on its site. In the second Punic war she supplied corn and fir to the Roman fleet. In the civil wars she took an active part, and when besieged by Octavius Cæsar yielded only to famine.

Volaterra, called Velathri on its coinage, of which the massive walls from four to five miles in circuit still stand on a great bare height visible far round, appears to have been one of the twelve cities. Parts of the walls of huge masonry remain. *Russellæ* still survives in its walls of colossal masonry, but otherwise is a wilderness. *Vetulonia* is given as one of the twelve cities, but little is known of it from records. *Pisa*, on the coast, was said to have been founded by Tarchon as a barrier against the Ligurians. Luna and Luca were probably included in its territory. Of *Fasulæ* the huge walls on an impregnable height still remain. In Roman times the inhabitants moved to the lower ground of Florence. At Cosa and Saturnia are remains of massive walls, and at the latter place a peculiar form of tomb, which seems to date from a very early and at any rate a rude age.

Salpenum and *Aurinia* are mentioned also among the Etruscan cities.

These, then, are the towns of Etruria. In their records and in their ruins they survive as monuments of a life spent in extraordinary activity, and highly honored in death. No country has left such wealth in its tombs. Nowhere have such battlements endured till now. Nature must have largely aided the Etruscans with her fertility, where now she is either exuberant to the degree of being a wilderness or pestilential as in the Maremma. Evidence of its natural products has been seen in the corn, fir wood, and iron, supplied to the Roman fleet. Its rivers and lakes must have assisted agriculture, on which the country appears to have relied even more than on commerce, since with a large sea coast it had comparatively few ports. The exceeding unhealthiness of the coast district anciently as now may have had much to do with this result. Yet their commerce was such as to place the inhabitants in a position to make treaties with that powerful nation of traders the Carthaginians, as, for instance, in the mutual agreement that the latter should hold Sardinia, while the Etruscans retained Corsica. Their success in piracy was too well known in early times. The greater part of the country is broken up by chains and ridges of hills. The supply of timber was large, and doubtless profitable, as were also the pastures, from which a considerable trade in cattle rearing and wool spinning was derived. The numerous lakes afforded extensive occupation in fishing, as did the forests for hunting. Wine, largely produced, was nowhere so fine as at Luna. Flax and linen were grown at Falerii and Tarquinii. Besides iron and copper, there was a supply of silver and gold. The variegated marble of Luna was greatly prized. Volaterræ yielded alabaster, Arretium a clay peculiarly adapted for pottery, for which in later times it was celebrated. Tufa or travertine could be obtained in massive blocks from many places. There were numerous warm and sulphurous springs. The country had once been volcanic in many places, the extinct craters serving as basins for lakes. The most fertile and most highly cultivated districts were in the north at the foot of the Apennines, and along the upper valleys of the Arno and Tiber. The chief rivers were the Clanis, the Arnus and the Umbro.

During the early period the natural resources of Etruria must have been severely drained by her wars with Rome. Afterward, when she sank into dependence, there arose private wealth, and their extravagance in diet was a reproach, as was their habit of reclining at banquets; while the presence on these occasions of women who joined in the toasts, contrary to the customs of the Greeks and Italic nations, was pointed out as consistent with the origin of the Etruscans from Lydia. Etruscan dancers, who appear to have attended private as well as public ceremonies, were distinguished for the skill with which, without words, and only by action and gesture, they represented a story. Different from this may have been the armed dance, since it recalls that of the Salii in Rome, who accompanied their movements by songs of heroic deeds of old. Athletic contests, such as those of the Roman circus, together with displays of gladiatorial fights, were part of the amusements. The flute, trumpet, and *lituus* were the favorite musical instruments. Their literature consisted mainly of religious verses and national songs. To these must be added the form of satyric songs. As regards time, they reckoned by lunar months, and appear to have had some principle of intercalation, to equalize the solar and the lunar year. The lapse of each year was recorded by driving a nail into the door of the temple of Nortia at Volsinii, a habit which passed over to Rome. The month was divided into weeks of eight days, the

eight being set apart for marketing and house affairs; the day began at noon. Next to years they counted by *sæcula*, each representing the longest life of the time, and reaching in some cases to 123 years, but with an average apparently of about 100 years. The Etruscan nation was to endure ten *sæcula*. The beginning of the 10th was announced in the year 44 B.C. The festivity of the Etruscans was accompanied by excess in personal ornaments and in dress; the toga picta, tunica palmata, the prætexta, the corona Etrusca, and the rich sandals which figured in Rome as insignia of office, had been introduced from Etruria, where also no doubt they served to mark the *principes* as distinct from the mass of the people to whose lot it is in the highest degree improbable that such luxury as has been spoken of could have fallen. Their food was pulse, which may have been sweeter at Volsinii from being ground in curiously contrived mills of basalt. Clientship, developed to the full in Rome, had first been proved practicable in Etruria, as was also the employment of slaves. The division of the people into three *tribus* and twelve *curiæ* at Mantua has been taken as representing the general principles of division. The interpretation of books and the conduct of such ceremonies as they prescribed belonged exclusively to the noble families, some of which had hereditary rights to the priesthood. In each state were always ten boys of such families undergoing instruction for this purpose. Instead of an oracle common to the whole nation as the Greeks had at Delphi, each state or city of Etruria had its own complicated machinery for discovering the will of the gods. Certain deities revealed their will by lightning, others otherwise.

The list includes Janus, Silvanus, Inuus, Saturnus, Summanus, Vejovis, Soranus, Mantus, Pales, Nortia, Feronia, Voltumna, Mania, Eileithyia, Iorta, Ancharia, Fortuna, Ceres, and others.

For these gods temples were necessary, but from records it would seem that they differed from those of Greece in no essential particular except in the ground plan, which, instead of being much greater in length than in breadth, was nearly square, to be in conformity with the *templum* or arbitrary division of the heavens prescribed by the sacred books. The theaters have been more fortunate, as at Fiesole, where the massive ruins still show how in this form of construction also the Etruscans had been indebted to the Greeks. There is, however, one form of construction in which they are allowed to have been first, that is the arch. How the perfect arch was developed may be seen from the apparent vaulting in the Regolini-Galassi tomb at Cervetri and elsewhere, a system of masonry which the Etruscans had in common with the builders of the so-called Tomb of Agamemnon at Mycenæ. The earliest tombs seem to be those in the form of a well, sunk in the ground and lined with stones, containing a vase with the ashes and burned remains of the dress and ornaments of the deceased. In this early period cremation appears to have been the rule, if, indeed, it was not always more or less a favorite form of sepulture. Next we have two classes of tombs. First the *tumuli*, consisting of chambers encircled by a massive wall, and covered with a mound of earth. Then we have tombs hewn in the rock, sometimes including several chambers connected with each other, and frequently adorned, with architectural fronts as of small temples. In these chambers were placed the sarcophagi and urns, for the most part richly sculptured, in general with subjects of design adapted from the Greeks, and having frequently on the lids reclining figures intended either as portraits or in some other way to represent the deceased, whose name and descent are painted on the front. In many cases the walls of those chambers are richly decorated

with paintings, not exclusively but mostly reproducing scenes of festivity. The dead were accompanied in their resting-placing by numerous presents of painted vases, armor, and other objects.

Language—By Etruscan is meant the language which was spoken by the Rasena in Etruria more or less during the last thousand years B.C. until it succumbed to the Latin. It was the predominant language of Campania, also, from 800 to 400 B.C., at which time it yielded to the Oscan. Soon after this, owing to the incursions of the Gauls, it lost its hold on what was apparently its oldest home in Italy, the valley of the Po, but continued to exist in a debased form in the time of Livy among certain peoples of the Alps, in particular among the Rhaeti.

Apparently the oldest alphabet as yet discovered on Etruscan remains is that known as the Chalcidian-Greek. It occurs on a vase from the Regolini-Galassi tomb at Caere, and in all probability it had not reached the Etruscans before the end of the eighth century B.C. No doubt everything tends in this early period to connect the Etruscans, not with the Greeks, but with the Carthaginians and the people of Italy and Sicily opposing the then active Greek colonization, which must have seriously threatened their trade.

As regards skill in the execution of artistic designs, it would seem as if all that the Etruscans ever attained in this direction had been learned from the Greeks, and, it will be fair to suppose, from Greeks resident among them. Under the circumstances it could scarcely have been otherwise, since at least from the fourth century B.C. onward the Greeks ruled supreme in matters of art, whereas in the early period of the seventh and sixth centuries their artistic productions, though then also doubtless by far the best attainable, had yet to compete against those of the Phœnicians or their kinsmen, the Carthaginians, who in fact had been longer in the market.

In dealing with the artistic remains of the Etruscans, it will be more convenient to take them in classes, according to their material or the purpose they served, than in groups of a historical sequence. Strictly speaking, there appears to be no historical development in them. There are archaic works, there are very late works, and there are works of a middle stage, but there is no growth from one to the other. The process of change consists of a leap to the next new phase of art developed by the Greeks, who, so to speak, set the fashion. It happens also that certain classes of objects went out of use or came into use with particular periods of art, and with the aid of this circumstance it will be possible to observe something approaching a historical order. We begin with the scarabs.

Scarabs.—These are gems consisting usually of carnelian or banded agate, cut in the form of beetles, and having a flat face on which a design is engraved in intaglio. They are pierced transversely, and were attached by swivels to rings either to be worn on the finger or to be hung on a chain round the neck. The form of the scarab suggests an origin in Egypt, where, in fact, they have been found in great numbers.

The designs, with few exceptions, are purely Greek, and, as a rule, they indicate the seventh and sixth centuries B.C. as the period of their origin.

Of the Greek divinities in the museum collection, two are represented by heads of Athene, obviously copied from an early coin of Corinth, while the two heads of the gorgon in the list stand in the same relation to a series of silver coins till recently ascribed to Athens, but now, by some high authorities, ascribed to Attica. Nor are these the only instances in which Greek coins have been used as models to imitate. Still, notwithstanding this, coupled also with the fact that the processes of

die-sinking and gem-engraving were almost identical, it is clear in many cases that the Etruscans had not confined themselves to models from this class of objects, but had skill enough to adapt designs from other sources, and especially from statues or figures sculptured in the round as more suitable than reliefs. A certain number of the designs are clearly treated as reliefs, but the majority exhibit a minuteness of anatomical detail and attitudes more appropriate to sculpture in the round. On the scarabs, draped figures are in a great minority, the preference being, as in early Greek sculpture, for the nude, with a great display of physical structure. In a considerable number of cases the names of the personages represented are inscribed on the gems in Etruscan characters, a habit which prevailed also in early Greek art.

Coins.—Considered as works of art, the coins may be classed next to the scarabs, from the similarity of the processes by which they are made, and the limited field which they present for design. It has been already said that the silver coinage of Etruria was struck on the Attic standard, as introduced by Solon in the beginning of the sixth century B.C. The gold coinage is according to the Miletus standard, which appears to have been the oldest gold standard in European Greece, including Athens, whence, doubtless, it was obtained by Etruria along with the silver standard. The majority of the silver and gold, as well as the light copper coins belonging to the same system, are stamped only on one side, in accordance with the early custom, the types being essentially Greek, among them the head of the gorgon, similar to that referred to on the scarabs, and the cuttle-fish, such as appears on Greek coins. Whatever may be the date ultimately assigned to the antiquities just mentioned, it may be taken as certain that the Etruscan coins in question do not go back to an earlier time than that of Solon.

Black Ware.—Connected, in a measure, with the engraved gems is a series of black terra-cotta vases, many of which are ornamented with bands of figures in low relief, pressed out in the clay when it is soft by means of an engraved cylinder rolled round the vase in such a way that the same design is constantly being repeated each time the cylinder completes a revolution. They consist of rows of animals, the lion, deer, sphinx, and panther, followed by a winged human figure moving at speed, and perhaps representing such a being as the gorgon, altogether presenting precisely the same appearance as those early painted vases found in Greek localities.

Jewelry.—Their tombs have preserved ample evidence of the passion of the Etruscans for rich dresses and personal ornaments, the former surviving in the wall-paintings, the latter in actual specimens of goldsmith's work, consisting of necklaces, ear-rings, wreaths, bracelets, finger-rings, and fibulae for fastening the dress. From a comparison of any large collection of these ornaments, such as that of the British Museum or of the Vatican Museum, with the same class of objects from Greece, it will be observed as a rule that where a pattern of any kind has to be produced, the Greek accomplished it skillfully and rapidly by means of fine gold wire soldered down into the required design—that is, by filigree, as it is called; while the Etruscan preferred to give it by sometimes innumerable and almost imperceptibly minute globules of gold, each separately made, and all soldered down in the necessary order—that is to say, by granulated work.

Bronzes.—Among the articles still pertaining to personal use is the series of bronze mirrors the extent of which may be conceived from the fact that a considerable number have been found with 430 plates, many of

which give from four to six examples. These mirrors are polished on one side, and on the other have a design engraved on the bronze, taken in the majority of cases from Greek legend or mythology, and no less from an artistic point of view founded on Greek models. In the mirrors just mentioned the figures are rendered in low, flat relief, but this is very exceptional. In other cases also the groups appear to be taken from the centers of pediment sculptures on temples, the figures, diminishing in scale toward each side, being made to fit into the narrowing circle of the mirror. Artistically they may be arranged in three classes. The first is an archaic style, in which the subjects, drapery, and general treatment of the figures have much of a local Etruscan character, though still on the model of early Greek work; the second a free style, where everything seems Greek of about the fourth century B.C., except the names of the persons inscribed in Etruscan. The third is a late and barbarous native style. The range of subjects is wide. Still it will be noticed that the almost exclusive use of mirrors by women has rendered subjects otherwise familiar, such as scenes of war, inappropriate. In great numbers, but always on small or poor examples, appear certain figures which have been identified as the Cabiri, and in any case seem to have been household genii.

Of skill in bronze casting there is little evidence among the Etruscan remains. In one specimen in the British Museum from Sessa, a core of iron has been employed, which by expanding has burst the figure down the side; and again in another specimen in the national collection a female bust from the Polledrara tomb at Vulci, it will be seen that the art of casting was unknown when it was executed. It is made of a number of thin pieces of bronze plate beaten out into the form of parts of the bust, and all fastened together, sometimes with fine nails, but apparently also in places with some sort of solder. On the other hand, to judge from the vases found in this tomb, which are made of pieces riveted together with nails, it would seem as if solder could hardly have been known. The same process of uniting parts together occurs in the very ancient silver relief from Perugia.

Vase Painting.—It has been proved that the great mass of painted vases found in Etruria, and familiarly called Etruscan, are productions of Greek workmen. The subjects, the style, and the inscriptions are all Greek. But side by side with them are certain undoubtedly Etruscan vases, the very small number of which would suggest that in this direction at least the Greek models defied imitation. At the same time it must be admitted that between the early Corinthian vases of about the seventh century B.C., discovered in Etruria, and the probably contemporary specimens of native work, there is no very great difference. It was the later development which the Etruscans could not follow.

Mural painting.—The mural paintings of the Etruscans are known only from their tombs, the inner walls of which it was not unusual to decorate in this manner, the work being executed on a prepared ground of white stucco, and with a considerable variety of colors, red, brown, yellow, carnation, blue, green, and black, to indicate flesh, hair, dress, armor, and other adjuncts. In the early specimens the subjects consist mostly of banquet scenes attended by dances to music apparently in groves, perhaps those of Elysium and games such as accompanied funeral obsequies in Greece and probably also in Etruria. Doubtless these representations in the interiors of tombs were intended to realize the future life of the deceased.

ETTLINGEN, the chief town of a district in the

circle of Carlsruhe, Baden, Germany, is situated at the entrance of the valley of the Alb, four and one-half miles south of Carlsruhe.

In and around Ettlingen a large number of Roman antiquities have been found. The population in 1875 was 5,286.

ETTMÜLLER, ERNST MORIZ LUDWIG, an able and erudite philologist, who has contributed largely to the critical literature of the Germanic tongues. He was born at Gersdorf, in Saxony, October 5, 1802, was privately educated by his father, the Protestant pastor of the village, and studied from 1823 to 1826 at the University of Leipsic. After a period of about two years, during which he was partly abroad and partly at Gersdorf, he proceeded to Jena, where, in 1830, he delivered, under the auspices of the university, a course of lectures on the old Norse poets. Three years later he was called to occupy the mastership of German language and literature at the Zurich gymnasium; and, in 1863, he left the gymnasium for the university, with which he had been partially connected twenty years before. His death took place at Zurich, 1877.

ETTMÜLLER, MICHAEL, a German physician, born at Leipsic, May 26, 1644. He died on March 9, 1683. Although Ettmüller only wrote short dissertations, he enjoyed an immense reputation.

ETTY, WILLIAM, R.A., one of the most eminent of British painters, was born at York, March 10, 1787. He showed in his earliest years a talent for drawing, and used to make sketches whenever he could find opportunity. After some scanty instruction of the most elementary kind, the future painter, at the age of eleven and a half, left the paternal roof, and was bound apprentice in the printing-office of the *Hull Packet*. Amid many trials and discouragements he completed his term of seven years' servitude, and having in that period come by practice, at first surreptitiously, though afterward allowed by his master "in lawful hours," to know his own powers, he removed at the close of it to London. The kindness of an elder brother and a wealthy uncle, William Etty, himself an artist, stood him in good stead during his long and noble struggle against the trials and difficulties that beset the career of nearly every person who adopts the profession of art for its own sake. He commenced his training by copying without instruction from nature, models, prints, etc.—his first academy, as he himself says, being a plaster-cast shop in Cock Lane, Smithfield. Here he made a copy from an ancient cast of Cupid and Psyche, which was shown to Opie, and led to his being enrolled in 1807 as student of the Academy, whose schools were at that time conducted in Somerset House. In 1811, after repeated rejections, he had the satisfaction of seeing his *Telemachus Rescuing Antiope* on the walls of the Academy's exhibition-room. It was badly hung, however, and attracted little notice. For the next five years he persevered with quiet and constant energy in overcoming the disadvantages of his early training. In 1820 his *Coral-finders*, exhibited at the Royal Academy, attracted much attention, and its success was more than equalled by that of *Cleopatra's Arrival in Cilicia*, shown in the following year. In 1822 he again set out on a tour to Italy, taking Paris on his way, and astonishing his fellow-students at the Louvre by the rapidity and fidelity with which he copied from the old masters in that gallery. On arriving at Rome he immediately resumed his studies of the old masters, and elicited many expressions of wonder from his Italian fellow-artists for the same qualities which had gained the admiration of the French. Early in 1824 he returned home to find that honors long unjustly withheld were awaiting him. In that year he was made an associate

of the Royal Academy, and in 1828 he was promoted to the full dignity of an Academician. In the interval between these dates he had produced the *Combat* (Woman interceding for the Vanquished), and the first of the series of three pictures on the subject of Judith, both of which ultimately came into the possession of the Scottish Academy, which body, to their credit be it told, were the first to discern and publicly appreciate the genius of Etty, and the value of his contributions to art. Etty's career was from this time one of slow but uninterrupted success. In 1830 Etty again crossed the Channel with a view to another art tour through the Continent; but he was overtaken in Paris, by the insurrection of the Three Days, and was so much shocked by the sights he was compelled to witness in that time that he returned home with all convenient speed.

In 1840, and again in 1841, Etty undertook a pilgrimage to the Low Countries, to seek and examine for himself the masterpieces of Rubens which exist in many of the churches and public galleries there. Two years later he once more visited France with a view to collecting materials for what he called "his last epic," his famous picture of *Joan of Arc*. This subject, which would have tasked to the full even his great powers in the prime and vigor of manhood, proved almost too serious an undertaking for him in his old age. It exhibits, at least, amid great excellencies, undeniable proofs of decay on the part of the painter; yet it brought a higher price than any of his earlier and more perfect works, viz., £2,500. In 1848, after completing this work, he retired to York, having realized a comfortable independence. One wish alone remained for him now to gratify; he desired to see a "gathering" of his pictures. With much difficulty and exertion he was enabled to assemble the great majority of them from various parts of the British Islands; and so numerous were they that the walls of the large hall he engaged in London for their exhibition were nearly covered. This took place in the summer of 1849; on November 13th of that same year, Etty died.

EU, a town of France in the department of Seine-Inférieure, arrondissement of Dieppe, is situated on the River Bresle, seventeen miles east-northeast of Dieppe.

EUBŒA, the largest island after Crete in the Ægean Sea, is separated from the coasts of Attica, Bœotia, Locris, and Thessaly by the Euboic Sea, which, at its narrowest part between Chalcis and the Bœotian shore, is called the Euripus. The length of the island, whose general outline is long and narrow, is about ninety miles; its breadth at the broadest part measures about thirty miles. Its general direction is from northwest to southeast, and it is traversed throughout its entire length by a mountain range, which forms part of the chain that bounds Thessaly on the east under the names of Ossa and Pelion.

Eubœa was believed to have originally formed part of the mainland, and to have been separated from it by an earthquake. Its northern extremity is separated from the Thessalian coast by a strait, which, at one point, is not more than a mile and a half in width. From the promontory of Cænæum southward for about fifteen miles the depth of the channel is so great that half a mile from the shore no bottom has been found with 220 fathoms of line. In the neighborhood of that town, both to the north and south, the bays are so confined as readily to explain the story of Agamemnon's fleet having been detained there by contrary winds. At Chalcis itself the strait, assuming the name of Euripus, contracts to a breadth of not more than 120 feet, and is divided in the middle by a rock, on which now stands a castle. The extraordinary changes of tide which take

place in this passage have been a subject of wonder from classical times to the present day, and are not yet explained. As you stand on the bridge you will see the current running like a river in one direction, and shortly afterward it will be running with equal velocity in the other. Strabo speaks of them as varying seven times in the day, but it is more accurate to say, with Livy, that they are irregular. A bridge was first constructed here in the twenty-first year of the Peloponnesian war, when Eubœa revolted from Athens; and thus the Bœotians, whose work it was, contrived to make that country "an island to every one but themselves." Hence Ephorus remarked that nature might almost be said to have made that island part of Bœotia. The Bœotians by this means secured a powerful weapon of offense against Athens, being able to impede their supplies of gold and corn from Thrace, of timber from Macedonia, and of horses from Thessaly.

The scenery of Eubœa is perhaps the most beautiful in Greece, owing to the varied combinations of rock, wood, and water; for from the uplands the sea is almost always in view, either the wide island-studded expanse of the Ægean, or the succession of lakes formed by the Euboic Sea, together with mountains of exquisite outline, while the valleys and maritime plains are clothed either with fruit trees or with plane trees of magnificent growth. On the other hand, no part of Greece is so destitute of interesting remains of antiquity. At the conclusion of the Greek War of Independence, 1830, the island was delivered from the Turkish sway, and constituted a part of the newly established Greek state.

EUBULIDES, a native of Miletus, was a philosopher of the Megaric school. Indirect evidence shows that he was a contemporary, whether older or younger is not certain, of Aristotle, whose philosophy he attacked with great bitterness, and that he numbered Demosthenes for a while among his pupils.

EUCALYPTUS, a genus of trees indigenous to Australia and Tasmania. In Australia the Eucalypti are commonly called "gum-trees," or "stringy-bark trees," from their gummy or resinous products, or fibrous bark.

EUCHARIST, the sacramental ordinance instituted by Christ and enjoined on His Church as of perpetual obligation, in which bread broken and wine poured out, after solemn benediction by the appointed minister, are partaken of by the faithful in commemoration of His atoning sufferings and death, and the benefits thereby purchased for mankind, and as a means by which those benefits are conveyed to the worthy recipient. This ordinance has been constantly observed, without essential variation, by all sections of the Christian church, from the time of its appointment to the present day. The only exception is that of the Quakers (or "Society of Friends,") who, from an exalted idea of the spiritual nature of Christianity, have discarded the Eucharist, together with all other religious symbolical acts. All other Christians have at all times agreed in regarding the Eucharist as their highest act of worship, and the most solemn ordinance of religion.

EUCHRE, a game at cards, much played in America. Euchre is said to be a corruption of the word *écarté*; the game is believed to have been first played by the French settlers in Louisiana, but at what date is uncertain. Euchre is played with thirty-two cards, the twos, threes, fours, fives, and sixes being rejected from a complete pack. The players cut for deal, and the lowest deals. The non-dealer then cuts to his opponent, who deals five cards to each, by two at a time and three at a time, or *vice versa*. The dealer turns up the top of the undealt cards for trumps. In suits not trumps the cards rank as at whist; in the trump suit

the knave (called the *right bower*) is the highest trump, and the other knave of the same color, black or red, as the case may be (called the *left bower*), is the next highest, this card being, of course, omitted from the suit to which it would otherwise belong. The other trumps rank as already stated, the queen being next above the ten. The taking of three tricks constitutes a point, while the taking of five is counted as two. When the trump is turned by the dealer, the other players have the privilege of objecting or "passing," or they may "order it up." If "ordered up," the dealer must discard one card, and take the trump turned instead. If the other players all "pass," the dealer may "take it up." The failure of the party "ordering up" or "taking up" to capture three tricks is a "euchre," and counts two points for opposite party. In a partner game a player may take his partner's best card, and "play it alone" against his opponents. He counts four if he takes five tricks, but is euchred if he fail to take three.

EUCCLID. Of the lives of the Greek mathematicians generally very little is known, and among the number Euclid is no exception; we are ignorant not only of the dates of his birth and death, but also of his parentage, his teachers, and the residence of his early years.

Among his works which have come down to us the most remarkable is the *Elements*. They consist of thirteen books; two more are frequently added, but there is reason to believe that they are the work of a later mathematician, Hypsicles of Alexandria. At the outset of the first book occur the definitions or explanations of the meanings of the terms employed; the postulates which limit the instruments to be used in the constructions to the ruler and the compasses; and the axioms or common notions, the fundamental principles from which mathematical truths are deduced. The propositions which consist of both theorems and problems, deal with rectilinear figures, principally the triangle and the parallelogram, and the book concludes with the celebrated Pythagorean theorem and its converse. The second book is occupied with the consideration of the rectangular parallelograms contained by the segment of straight lines, and their relation to certain squares. It contains only two problems, the one to divide a straight line in medial section ("the divine section," as it was afterward called), and the other which shows how to effect the quadrature of any rectilinear area. The third book, prefaced with a few definitions, discusses the properties of circles. The fourth book contains no theorems. The problems are on the inscription in, and circumscription about circles of triangles, squares and certain regular polygons, and on the inscription of circles in, and the circumscription of circles about some of these figures. The fifth book stands alone, depending upon none of the preceding books, and contains the theory of proportion, with respect not merely to geometrical magnitudes, such as lines, angles, areas, solids, but to any magnitudes of which multiples can be formed. The sixth book contains the application of the theory of proportion, mostly to rectilinear figures. The seventh, eighth, and ninth books are arithmetical, that is, treat of the properties of numbers. The tenth book is the longest of the *Elements*. It is occupied with the consideration of commensurable and incommensurable magnitudes, and ends with the proposition that the diagonal and the side of a square are incommensurable.

The eleventh, twelfth and thirteenth books treat mainly of solid geometry. In the eleventh are given the definitions which serve for the three books, the principal properties of straight lines and planes, of solid angles, and of parallelepipeds. The twelfth book begins

with two theorems of plane geometry, and then discusses chiefly the properties of pyramids, cones and cylinders.

The question has often been mooted, to what extent Euclid, in his *Elements*, is a discoverer or a compiler. To this question no entirely satisfactory answer can be given, for scarcely any of the writings of the earlier geometers have come down to our times.

The first six and, less frequently, the eleventh and twelfth books are the only parts of the *Elements* which are now read in the schools or universities of the United Kingdom; and, within recent years, strenuous endeavors have been made by the Association for the Improvement of Geometrical Teaching to supersede even these. On the Continent, Euclid has for many years been abandoned, and his place supplied by numerous treatises, certainly not models of geometrical rigor and arrangement. The fact that for twenty centuries the *Elements*, or parts of them, have held their ground as an introduction to geometry is a proof that they are, at any rate, not unsuitable for such a purpose. They are, speaking generally, not too difficult for novices in the science; the demonstrations are rigorous, ingenious, and often elegant; the mixture of problems and theorems gives perhaps some variety, and makes their study less monotonous; and, if regard be had merely to the metrical properties of space as distinguished from the graphical, hardly any cardinal geometric truths are omitted.

EUCCLID, of Megara, a Greek philosopher, the founder of the Megarian school, was born in the latter half of the fifth century B.C., probably at Megara, though Gela in Sicily has also been named as his birthplace. He was one of the most devoted of the disciples of Socrates. If we may believe Aulus Gellius, such was his enthusiasm that, when a decree was passed forbidding the Megarians to enter Athens, he regularly visited his master by night in the disguise of a woman; and he was one of the little band of intimate friends who had the privilege of listening to the hero's last discourse. After his master's death, he withdrew, with a number of his fellow-disciples, to Megara; and it has been conjectured, though there is no direct evidence, that this was the period of Plato's residence in Megara, of which indications appear in the *Theætetus*. The fundamental principle of Euclid's philosophy was a combination of the Eleatic conception of Being—the One and All, and the Socratic conception of the Good.

Of Euclid's followers the chief were Eubulides, who taught Demosthenes, wrote against Aristotle; Diodorus Chronus, the author of certain arguments to prove the impossibility of motion; Philo, and, most famous of all, Stilpo, who was distinguished by the attractiveness of his lectures.

EUDOCIA, the wife of Theodosius II., was the daughter of the Athenian sophist Leontius, or Leon. It is impossible to fix the date of her birth more precisely than in the last decade of the fourth century. She was called Athenais prior to her conversion to Christianity. By her father she was carefully instructed in literature and the sciences; and so high an estimate did the philosopher form of her beauty and merit that, thinking any other endowment unnecessary, he divided his whole patrimony between his two sons. Athenais, however, resented this as an injustice, and carried her plea to Constantinople before the emperor. Here she gained access to Pulcheria, the sister of Theodosius, and by her she was secretly destined to be the wife of the emperor. The probable date of her marriage is 421. Before her elevation to the throne, she renounced paganism and was baptized. It was not, however, till the birth of a daughter that she received the title of Augusta (423). Her brothers she not only forgave, but

raised to the dignity of consuls and præfects. Her peace was soon after disturbed by the jealousy of her husband, on account, it is said, of his observing a beautiful apple which he had presented to her in the hands of Paulinus, his master of the offices. The execution of the supposed favorite, and the retirement of Eudocia in 449 to Jerusalem, did not appease the anger of the emperor, who despatched a messenger for the purpose of putting to death two ecclesiastics who had gained her confidence. The assassination of his envoy provoked the emperor still further, and Eudocia was stripped of her royal honors, and degraded in the eyes of the nation. In Jerusalem Eudocia became infected with the Euty-chian heresy, and through her influence it made considerable progress in Syria, but the misfortunes of her daughter Licinia Eudocia led her to obtain a reconciliation with Pulcheria, and through her mediation and that of her brothers she afterward returned to the communion of the church. She died at Jerusalem about 460, and was buried in the church of St. Stephen. With her latest breath she protested that she had never transgressed the bounds of innocence and friendship. She composed a paraphrase on the Octateuch in heroic verse, a paraphrase of Daniel and Zechariah, and a poem on the martyrdom of St. Cyrian. To these are added a poem on her husband's victory over the Persians.

EUDOCIA AUGUSTA, of Macrembolis, lived in the second half of the eleventh century. She was the wife of the Emperor Constantine XI., and after his death of Romanus IV. She had sworn to her first husband on his deathbed not to marry again, and had even imprisoned and exiled Romanus, who was suspected of aspiring to the throne. Perceiving, however, that she was not able unaided to avert the invasions which threatened the eastern frontier of the empire, she revoked her oath, married Romanus, and with his assistance dispelled the impending danger. She did not live very happily with her new husband, who was warlike and self-willed, and when he was taken prisoner by the Turks she was compelled to vacate the throne in favor of her son Michael and retire to a convent, where she died at an advanced age. She compiled a dictionary of mythology entitled *A Collection of Violets*.

EUDOXUS, a physical philosopher, was a native of Cnidus, and flourished about the middle of the fourth century B.C. It is chiefly in his quality of astronomer that his name has descended to our times. What particular service he rendered to that science beyond introducing the Egyptian sphere into Greece, and correcting the length of the year, cannot now be ascertained. He died in Athens in the fifty-third year of his age. Strabo attributes to him the introduction of the odd quarter day into the year.

EUDOXUS, of Cyzicus, a Greek navigator who flourished about 130 B.C.

EUGENE, FRANÇOIS, commonly called **PRINCE EUGENE OF SAVOY**, one of the greatest generals of his time, born at Paris, on October 18, 1663, was the fifth son of Eugene Maurice, Count of Soissons, who was grandson of the Duke of Savoy, Charles Emmanuel I. Originally destined for the church, Eugene was known at court as the *petit abbé*; but his own predilection was strongly for the army. His mother, however, had fallen into disgrace at court, and his application for a commission, repeated more than once, was refused by the king, Louis XIV., prompted probably by the minister Louvois. This engendered in him what proved to be a life-long resentment against the king and his native country. Having quitted France in disgust, he proceeded to Vienna, where the Emperor Leopold, who was allied to his family, received him kindly, and granted him permission, along with several other

Frenchmen of distinction, to serve against the Turks under the banners of Austria. His first campaign was that of 1683, in which he so distinguished himself that the emperor gave him the command of a regiment of dragoons. After several other campaigns he became major-general; and it was in that capacity that he served at the siege of Belgrade in 1688. At the instigation of Louvois, a decree of banishment from France was now issued against all Frenchmen who should continue to serve in foreign armies. "I shall return into France in spite of him," said Eugene, when the news was communicated to him; and he continued his brilliant career in foreign service, one great stimulus to his ambition being the hope that he might be able to enter his native country as an invader. In 1691 Louis XIV., secretly offered him the baton of a marshal of France, with the government of Champagne which his father had held, and also a pension of 2,000 pistoles. But Eugene rejected these offers with indignation, and proceeded to combat the Turks commanded by the Sultan Kara-Mustapha in person. He surprised the enemy September 11, 1697, at Zenthla, on the Theiss, in a camp retrenched; and, after an attack as vigorous as it was daring, he killed twenty thousand of them, drove ten thousand into the river, made prisoners of the remainder, and took the whole of their artillery and baggage. The victory was one of the most complete and important ever won by the Austrian arms. Immediately after the battle, Eugene returned to Hungary; and, after a campaign distinguished by no remarkable event, a treaty of peace was at length concluded with the Turks at Carlowitz, on January 26, 1699.

Prince Eugene's next opportunity of distinguishing himself in active service came in the war of the Spanish succession. At the commencement of the year 1701, he was sent into Italy once more to oppose his old antagonist Catinat. He achieved a rapid success, forcing the French army, after sustaining several checks, to retire behind the Oglio. By means of a stratagem, however, Eugene penetrated into the City of Chiassi during the night, at the head of 2,000 men, and, though he found it impossible to hold the town, succeeded in carrying off the Duke of Villeroi as a prisoner. But as the Duke of Vendôme, a much abler general, replaced the captive, the incursion, daring though it was, proved anything but advantageous to the Austrians. The superior generalship of his new opponent, and the fact that the French army had been largely reinforced, while reinforcements had not been sent from Vienna, forced Prince Eugene to confine himself to a war of observation, without important results. This campaign was terminated by the sanguinary battle of Luzara, fought on August 1, 1702, in which each party claimed the victory. Both armies having entered into winter quarters, Eugene returned to Vienna, where he was appointed president of the council of war. He then set out for Hungary in order to combat the insurgents in that country; but his means proving insufficient, he effected nothing of importance. The revolt was, however, put down by the success which General Heister obtained in another quarter. Prince Eugene accordingly proceeded to Bavaria, where, in 1704, he made his first campaign with Marlborough. Similarity of tastes, views, and talents soon established between these two great men a friendship which is rarely to be found amongst military chiefs, and which contributed, more than all other causes put together, to the success which the allies obtained. The first and perhaps the most important of these successes was that of Höchstädt or Blenheim, gained on August 3, 1704, when the English and imperial troops triumphed over one of the finest armies that France had ever sent into Germany.

But since Prince Eugene had quitted Italy, Vendôme, who commanded the French army in that country, had obtained various successes against the Duke of Savoy, who had once more deserted France and joined Austria. The emperor deemed the crisis so serious that he recalled Eugene and sent him to Italy to the assistance of his ally. Vendôme at first opposed great obstacles to the plan which the prince had formed for carrying succors into Piedmont; but after a variety of marches and counter-marches, in which both commanders displayed signal ability, the two armies met at Cassano (August 16, 1705), where a deadly engagement ensued, and Prince Eugene received two severe wounds which forced him to quit the field. This accident decided the fate of the battle, and for the time suspended the prince's march toward Piedmont.

On September 10, 1706, having again attacked the French army in its entrenchments, he gained a complete victory, which decided the fate of Italy. This brilliant achievement, the result of the most masterly combinations, and in several respects the prototype of the campaign of Marengo in 1800, affords one of the most remarkable examples of the difficulty of defending extensive lines even against an inferior army, massed upon one or two points. In the heat of the battle Eugene received a wound, and was thrown from his horse into a ditch. As a recompense for so important services the prince received the government of the Milanese, of which he took possession with great pomp on April 16, 1707.

The prince now repaired to Vienna, where he was received with great enthusiasm both by the people and by the court. "I am very well satisfied with you," said the emperor, "excepting on one point, which is, that you expose yourself too much." This monarch immediately dispatched Eugene to Holland, and to the different courts of Germany, in order to forward the necessary preparations for the campaign of the following year, 1708.

Early in the spring of 1708 the prince proceeded to Flanders, in order to assume the command of the forces which his diplomatic ability had been mainly instrumental in assembling. This campaign was opened by the victory of Oudenarde, to which the perfect union of Marlborough and Eugene on the one hand, and the misunderstanding between Vendôme and the Duke of Burgundy on the other, seem to have equally contributed. After this important conquest, Eugene and Marlborough proceeded to the Hague, where they were received in the most flattering manner by the public and by the states-general. Negotiations were then opened for peace, but proved fruitless. The campaign of 1709 was opened in Flanders by two hostile armies, each a hundred and fifty thousand strong. That of the French was commanded by Villars, who, fearing to compromise himself in opposition to two such great captains as Marlborough and Eugene, remained upon the defensive, and suffered them to take Tournay without opposition. Having gone to succor Mons he was followed by the allies, who attacked him at Malplaquet on September 9th, in a formidable position, where he had had time to entrench himself. The attack was made with equal vigor and ability; but owing to the strength of the French position, and the tenacity with which it was maintained, the victory was purchased at the cost of twenty-five thousand men killed on the field of battle, and the Dutch infantry was almost annihilated. Although the allies remained masters of the field of battle, this barren advantage had been so dearly bought that they found themselves soon afterward out of all condition to undertake anything. Their army accordingly went into winter-quarters, and Prince Eugene returned to Vienna,

whence the emperor almost immediately dispatched him to Berlin. From the king of Prussia the prince obtained everything which he had been instructed to require; and having thus fulfilled his mission, he returned into Flanders, where, excepting the capture of Douai, Bethune, and Aire, the campaign of 1710 presented nothing remarkable. On the death of the emperor Joseph I. in April, 1711, Prince Eugene, in concert with the empress, exerted his utmost endeavors to secure the crown to the arch-duke, who afterward ascended the imperial throne under the name of Charles VI. In the same year the changes which had occurred in the policy, or rather the caprice, of Queen Anne, brought about an approximation between England and France, and put an end to the influence which Marlborough had hitherto possessed. When this political revolution became known, Prince Eugene immediately repaired to London, charged with a mission from the emperor to reëstablish the credit of his illustrious companion in arms, as well as to reattach England to the coalition. The mission having proved unsuccessful, the emperor found himself under the necessity of making the campaign of 1712 with the aid of the Dutch alone. The defection of the English, however, did not induce Prince Eugene to abandon his favorite plan of invading France. He resolved, at whatever cost, to penetrate into Champagne; and in order to support his operations by the possession of some important places, he began by making himself master of Quesnoy. But the Dutch, having been surprised and beaten in the lines of Denain, where Prince Eugene had placed them, he was obliged to abandon the project which he had so long cherished. This was the last campaign in which Austria acted in conjunction with her allies. But the superiority of the French army prevented Eugene from relieving either Landau or Freiburg, which were successively obliged to capitulate; and seeing the empire thus laid open to the armies of France, and even the hereditary states themselves exposed to invasion, the prince counseled his master to make peace. Sensible of the prudence of this advice, the emperor immediately intrusted Eugene with full powers to negotiate a treaty of peace, which was concluded at Rastadt, March 6, 1714. In the spring of 1716 the emperor, having concluded an offensive alliance with Venice against Turkey, appointed Eugene to command the army of Hungary; and at Peterwaradin, with a force not exceeding sixty thousand men, he gained (August 5, 1716) a signal victory over the Turks, who had not less than one hundred and fifty thousand men in the field. In recognition of this service to Christendom the pope sent to the victorious general the consecrated rapier which the court of Rome was accustomed to bestow upon those who had triumphed over the infidels. But the ensuing campaign, that of 1717, was still more remarkable on account of the battle of Belgrade. After having besieged the city for a month he found himself in a most critical, if not hopeless, situation. The force opposed to him numbered six times his own army, which besides was becoming smaller every day owing to the prevalence of dysentery. In these circumstances the only possible deliverance was by a bold and decided stroke. Accordingly on the morning of August 16, 1717, Prince Eugene ordered a general attack, which resulted in the total defeat of the enemy with an enormous loss, and in the capitulation of the city six days afterward. The prince was wounded in the heat of the action, this being the thirteenth time that he had been hit upon the field of battle. On his return to Vienna he received, among other testimonials of gratitude, a sword valued at eighty thousand florins from the emperor.

As the government of the Netherlands, formerly conferred upon Eugene, had now for some reason been bestowed on a sister of the emperor, the prince was appointed vicar-general of Italy, with a pension of three hundred thousand florins. The contest which arose out of the succession of Augustus II. to the throne of Poland having afforded Austria a pretext for attacking France, war was resolved on, contrary to the advice of Eugene. In spite of this, however, he was appointed to command the army destined to act upon the Rhine, which from the commencement had very superior forces opposed to it; and if it could not prevent the capture of of Philipsburg after a long siege, it at least prevented the enemy from entering Bavaria. Prince Eugene, having now attained his seventy-first year, no longer possessed the vigor and activity necessary for a general in the field, and he welcomed the peace which was concluded October 3, 1735. On his return to Vienna, his health declined more and more, and he died in that capital April 21, 1736, leaving an immense inheritance to his niece, the Princess Victoria of Savoy.

EUGENIUS, the name of four popes.

EUGENIUS I. was a native of Rome. Elected pope in 654, on the banishment of Martin I. by the Emperor Constans II. He died in 657, and was canonized, his day being June 2.

EUGENIUS II. was a native of Rome, and was chosen to succeed Pascal I., in 824. A council which assembled at Rome, during the reign of Eugenius, passed several enactments for the restoration of Church discipline, took measures for the foundation of schools and chapters, and decided against priests wearing a secular dress or engaging in secular occupations. Eugenius also adopted various provisions for the care of the poor and of widows and orphans, and on that account received the name of "father of the people." He died in 827.

EUGENIUS III., a native of Pisa, was elected pope in February, 1145. During nearly the whole of his pontificate Eugenius was unable to reside in Rome. Hardly had he left the city to be consecrated in the monastery of Farfa, when the citizens, under the influence of Arnold of Brescia—the great opponent of the pope's temporal power—established the old Roman constitution, and elected Giordano to be "patrician." Eugenius appealed for help to Tivoli and to other cities at feud with Rome, and with their aid was successful in making such conditions with the Roman citizens as enabled him for a time to hold the semblance of authority in his capital. In December, 1145, he addressed a letter to Louis VII., of France, calling on him to take part in another crusade; and at a great diet held at Spire, in 1146, the Emperor Conrad III. also, and many of his nobles were incited to dedicate themselves to the holy warfare. In 1150, through the aid of the King of Sicily, he was able again to enter Rome, but the jealousy of the republicans soon compelled him to retire. The Emperor Frederick Barbarossa had promised to aid him against his revolted subjects, but the death of Eugenius, at Tivoli, June 7, 1153, prevented the fulfillment of the engagement.

EUGENIUS IV., born in 1383, was the son of a Venetian merchant, and bore the name of Gabriel Condolmieri. His mother was the sister of Gregory XII., and when Gregory mounted the papal throne in 1406, Gabriel, then a Celestine monk, became bishop of Sienna. In 1408, he was made cardinal, and on the death of Martin V. he was elected pope March 3, 1431. Martin V belonged to the House of Colonna, and the rich treasures which he had accumulated during his pontificate remained in their hands. Eugenius, however, claimed their possession, as the papal successor of Martin,

and this being refused, he, with the aid of the rival faction of the Orsini and the general body of the Roman citizens, seized all the Colonnas who were in Rome, captured their castles in the surrounding country, and compelled the prince of Salerno to make humiliating terms. With the large sum of money acquired from the Colonnas he was enabled soon afterward to quell a revolt which had assumed serious dimensions in the Roman states, and for a time his power was undisputed throughout all his dominions.

On the day that he was chosen pope the council appointed by his predecessor met at Basel. Three principal subjects were to engage its attention—the reconciliation of the Hussites, the reform of the Church, and the reunion of the Greek and Latin Churches. A great victory gained by the Hussites a few weeks after the council met seemed, in the opinion of the majority of the members, to lend to the two former subjects an additional and supreme urgency, and they actually arranged to receive a deputation of the Hussites for the purpose of agreeing to a peaceable settlement of the points in dispute. Such a proposal, however, at once excited the alarm of Eugenius—alarm regarding his own authority, and alarm at the manifestation of such signs of clemency toward heretics.

In the year 1434, the Colonnas, aided by the Visconti, compelled Eugenius to flee from Rome. He escaped in disguise to Florence, and afterward, notwithstanding an offer of assistance from the patriarch of Alexandria, took up his residence at Bologna. Meantime the essential subjects of dispute between him and the council, so far from being settled, were gradually leading to a crisis, and when finally the council endeavored to deprive him of the power of conferring benefices, he in 1437, sought to change the place of meeting to Ferrara, on the ground that the latter place was more suitable for discussing the reunion with the Greek Church. The council replied by summoning him to appear before them within sixty days, at the end of which time they, on his failing to appear, suspended him from his functions. In January 10, 1438, the opposition council, supported by the Emperor Sigismund and the patriarch, met at Ferrara, but on account of an outbreak of the plague, the place of meeting was changed to Florence. Here the act declaring the reunion of the Greek and Latin Churches was published July 6, 1439. Meantime, the council at Basel proceeded to elect as pope Amadeus, Duke of Savoy, under the title of Felix V., and continued the work of reform until 1443. In October, of that year, Eugenius, with the aid of Alphonso, King of Aragon, whose claim to the throne he had supported in opposition to René, of Anjou, was enabled to enter Rome; and in 1447, through the subtle but unprincipled craft of Æneas Sylvius Piccolomini, who had forsaken his old master Amadeus, the whole of Germany was induced to declare against the anti-pope. The same day, however, that news reached Eugenius of this diplomatic triumph, he was seized with a mortal illness, and, after only lingering to sign the treaty of pacification, he died February 23, 1447.

EUGUBINE are seven tablets of brass containing a series of sacerdotal inscriptions in the ancient Umbrian language, of inestimable value to the student of Italian linguistics. The tables contain the acts of a corporation of priests called the Attidien Brethren, who had authority over a considerable region, and probably derived their name from an ancient town, Attidium, corresponding to the modern Attigio. The brethren were twelve in number, and acted under the presidency of an *adfertur*. They offered sacrifices to a large number of gods and goddesses—Jupiter, Sancus, Mars, Ficus, Grabovius, Cerfius, Voñonus, Tefer, etc., many of

whom are altogether unknown to the classical student, and probably belonged to an indigenous Umbrian cult.

EULENSPIEGEL, one of the most popular of European chapbooks, consisting of stories of ludicrous roguery, in which the love of fun is not unmingled with the love of mischief. The name in its present form is equivalent to Owl's Mirror. No definite explanation has been given of the origin of the name, but one interpretation makes it rest on the fact that man recognizes his faults no more than an owl that looks into a mirror.

According to an old tradition, the tricks and jests of the collection are attributed to a certain Till or Tyll Eulenspiegel, otherwise Till the Saxon or Tylus Saxonicus, who was born at Kneitlingen near Schoppenstadt, in the duchy of Brunswick, and was the son of Claus Eulenspiegel and Anna Wortbeck. He is usually stated to have been buried in 1350 at Mölln, about four leagues from Lubeck, and that his tomb was adorned with a fantastic effigy, holding in one hand a little tankard with a jack-in-a-box, and in the other a basket full of little mannikins with fool's caps on their heads.

EULER, LEONARD, one of the most distinguished mathematicians of the eighteenth century, was born at Basel, on April 15, 1707. After receiving preliminary instructions in mathematics from his father, he was sent to the University of Basel, where geometry soon became his favorite study. While he was keenly engaged in physiological researches, he composed a dissertation on the nature and propagation of sound, and an answer to a prize-question concerning the masting of ships, to which the French Academy of Sciences adjudged the second rank in the year 1727.

In 1727, on the invitation of Catherine I., Euler took up his residence in St. Petersburg, and was made an associate of the Academy of Sciences. In 1730, he became professor of physics, and in 1733 he succeeded his friend Daniel Bernoulli in the chair of mathematics. It was at this time that he carried the integral calculus to a higher degree of perfection, invented the calculation of sines, reduced analytical operations to a greater simplicity, and threw new light on nearly all parts of abstract or pure mathematics. In 1735 a problem proposed by the academy, for the solution of which several eminent mathematicians had demanded the space of some months, was solved by Euler in three days, but the effort threw him into a fever which endangered his life and deprived him of the use of his right eye.

In 1741 Euler accepted the invitation of Frederick the Great to Berlin, where he was made a member of the Academy of Sciences and professor of mathematics.

The respect in which he was held by the Russians was strikingly shown in 1760, when a farm he occupied near Charlottenburg happened to be pillaged by the invading Russian army. On its being ascertained that the farm belonged to Euler, the general immediately ordered compensation to be paid, and the Empress Elizabeth sent an additional sum of four thousand crowns. In 1766 Euler with difficulty obtained permission from the king of Prussia to return to Petersburg, to which he had been originally invited by Catherine II. Soon after his return to St. Petersburg a cataract formed in his left eye, which ultimately deprived him almost entirely of sight. It was in these circumstances that he dictated to his servant, a tailor's apprentice, who was absolutely devoid of mathematical knowledge, his *Elements of Algebra*, a work which, though purely elementary, displays the mathematical genius of its author, and is still reckoned one of the best works of its class. The two prize-questions proposed by the same academy for 1770 and 1772 were designed to obtain a more perfect theory of the moon's motion. Euler, assisted by his eldest son Johann Al-

bert, was a competitor for these prizes, and obtained both.

Some time after this the celebrated Wenzell, by couching the cataract, restored Euler's sight; but a too harsh use of the recovered faculty, along with some carelessness on the part of the surgeons, brought about a relapse. With the assistance of his sons, and of Krafft and Lexell, however, he continued his labors, neither the loss of his sight nor the infirmities of an advanced age being sufficient to check his activity.

Euler's knowledge was more general than might have been expected in one who had pursued with such unremitting ardor mathematics and astronomy as his favorite studies. He had made very considerable progress in medical, botanical, and chemical science, and he was an excellent classical scholar, and extensively read in general literature. He was much indebted to an uncommon memory, which seemed to retain every idea that was conveyed to it, either from reading or meditation. He could repeat the *Æneid* of Virgil from the beginning to the end without hesitation, and indicate the first and last line of every page of the edition which he used. Euler's constitution was uncommonly vigorous, and his general health was always good. His last subject of investigation was the motion of balloons, and the last subject on which he conversed was the newly discovered planet Herschel. On the September 18, 1783, whilst he was amusing himself at tea with one of his grandchildren, he was struck with apoplexy, which terminated his illustrious career at the age of seventy-six. Euler's genius was great, and his industry still greater. His works, if printed in their completeness would occupy from 60 to 80 quarto volumes.

EUMENES, a native of Cardia, was born 360 B.C., and died in 315. At a very early age he was employed as private secretary by Philip, King of Macedonia, and on the death of that prince he was continued in the same office by Alexander. In this capacity he accompanied Alexander into Asia. The esteem in which he was held by his royal master was proved by his appointment to a high military command. See *Plutarch's Life of Eumenes*.

EUMENIDES. See ERINYES.

EUNAPIUS, a Greek sophist and historian, born at Sardis, 347 A.D.

EUNOMIUS, one of the chief leaders of the extreme or Anomæan Arians, who are sometimes accordingly called Eunomians, was born at Dacora in Cappadocia early in the fourth century. The Eunomian heresy was formally condemned by the œcumenical council of Constantinople. The sect maintained a separate existence for some time, but gradually fell away owing to internal divisions.

EUNUCH, an emasculated person. From remote antiquity among the Orientals, as also at a later period in Greece, eunuchs were employed to take charge of the women, or generally as *chamberlains*—whence the name—those who have charge of the bedchamber. Their position in the harems of princes affording them the ready means of access to the royal person, it is not surprising that they were frequently enabled to exercise an important influence over princes, and even to raise themselves to stations of great trust and power. Hence the term eunuch in Egypt came to be applied to any court officer, whether a castratus or not. The vulgar notion that eunuchs are necessarily deficient in courage and in intellectual vigor is amply refuted by history. The hideous trade of castrating boys to be sold as eunuchs for Moslem harems has continued to modern times, the principal district whence they are taken being the inland of northeastern Africa. As the larger proportion of children die after the operation (generally

total removal), such as recover fetch at least three or four times the ordinary price of slaves. Even more vile, as being practiced among a civilized European nation, has been the Italian practice of castrating boys to prevent the natural development of the voice, in order to train them as adult soprano singers, such as might till lately be heard in the Sistine Chapel. Though such mutilation is a crime punishable with severity, the supply of "soprani" never failed so long as their musical powers were in demand in high quarters. Driven long ago from the Italian stage by public opinion, they remained the musical glory and moral shame of the papal choir till the accession of the present pope (Leo XIII.), one of whose first acts was to get rid of them. This unnatural development of asceticism appears in early Christian ages, its votaries acting on the texts Mat. xix, 12, v. 28-30.

EUPATORIA, a seaport town of European Russia, at the head of a circle in the government of Taurida.

EUPEN, the chief town of a circle in the district of Aix-la-Chapelle, Rhenish province of Prussia, is situated in a beautiful valley at the confluence of the Hill and Vesdre.

EUPHORBUM, an acrid, dull-yellow or brown resin, of the concreted milky juice of a cactus-like perennial plant of the natural order Euphorbiaceae, indigenous to Morocco. It is procured by making incisions in the branches of the plant, and allowing the juice to harden in the heat of the sun. Pliny states that the name of the drug was given to it in honor of Euphorbus, the physician of Juba II., King of Mauritania. In former times euphorbium was valued in medicine for its drastic, purgative, and emetic properties; and as an emetic it is still occasionally resorted to. On account of the violence of its action, it requires to be mixed for use with starch or flour.

EUPHORION, a Greek poet and grammarian, was born at Chalcis in Euboea in the 126th Olympiad, 274 B.C. After amassing great wealth, he retired (221 B.C.) to the court of Syria, and there assisted Antiochus the Great in forming the royal library at Antioch, which it was intended should rival that of Alexandria; and in this employment he died probably about 200 B.C.

EUPHRANOR, a painter and statuary of Greece, who flourished about the middle of the fourth century B.C., was born in the territory of Corinth, but, having practiced his art and acquired his renown at Athens, is always identified with the Athenian school. In sculpture he produced a great number of pieces. Of the finest of these, a figure of Paris, a beautiful copy now exists.

EUPHRATES. The Euphrates has been one of the best known rivers of the world from the remotest antiquity. The character of the Euphrates is that of a river of the first order struggling through high hills or rather low mountains, and making an exceedingly tortuous course as it forces its way over a rocky or a pebbly bed from one natural barrier to another. As it winds round its numerous barriers it carries occasionally toward each of the cardinal points a considerable body of water, and is shallow enough in some places for loaded camels to pass in autumn, the water rising to about four and one-half feet.

The river in this part of its course, about the thirty-sixth parallel of latitude, runs through a valley of a few miles in width, which it has eroded in the rocky surface, and which, being more or less covered with alluvial soil is pretty generally cultivated by artificial irrigation. The method of irrigation is peculiar, dams of solid masonry being run into the bed of the river, frequently from both sides at once, so as to raise the level of the stream and thus to give a water power of several feet

in height which is used to turn a gigantic wheel sometimes forty feet in diameter. The water is thus raised to a trough at the top of the dam, and from thence is distributed among the gardens, and melon beds, and rice fields, occupying the valley between the immediate bed of the river and the rocky banks which shut it out from the desert. The wheels, which are of the most primitive construction, being made of rough branches of trees, with 100 or 150 rude clay vessels slung on the outer edge, raise a prodigious amount of water, and are, moreover, exceedingly picturesque, the dams or aqueducts to which they are attached being often formed of a series of well-built Gothic arches; but they are great impediments to navigation, as they cause a current of six or seven knots an hour, which cannot be surmounted by any ordinary steam power. In some parts of the river 300 of these wheels have been counted within a space of 130 miles, and when our steamers first appeared upon the river, at least one-third of the wheels were in working order; but they have since fallen very generally into ruin, the Arab population, which used to cultivate the immediate banks of the river, having for the most part moved further off into the desert.

From Korna, where the Tigris and Euphrates at present unite, the river sweeps on in its majestic course to Bussorah; it is here 1,000 yards in width, and from three to five fathoms deep, so as to be navigable by vessels of war, which not infrequently ascend as far as the junction. Bussorah, which was formerly a very considerable city, but has now dwindled to a small town of 10,000 inhabitants, lies on a creek at a distance of a couple of miles from the river. Off the mouth of the creek, however, the Euphrates usually presents a somewhat animated appearance, the headquarters of the Turkish naval force in the Persian Gulf being here established, and several mercantile steamers from Bombay and Baghdad being also not infrequently anchored in the roads. The native craft is likewise numerous, and occasionally the port is visited by a vessel of war from the British squadron in the gulf. From Korna to Bussorah the banks of the river are well cultivated, and the date groves are almost continuous.

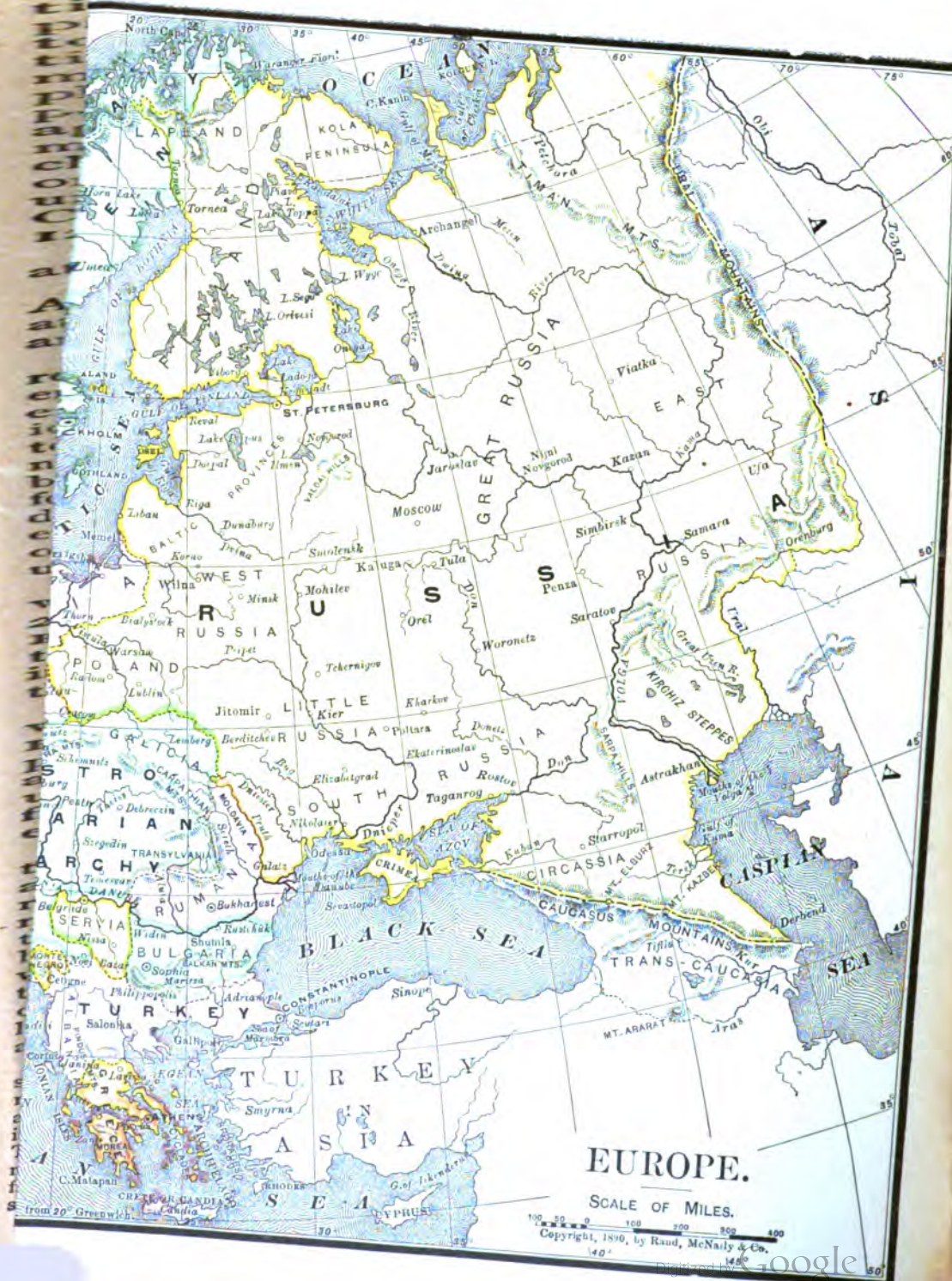
The Euphrates valley, independently of its great natural advantages, has attracted some attention in recent times from its geographical position, forming as it does the most direct line of transit between the Mediterranean and the Persian Gulf, and thus offering an alternative means of communication with India, not greatly inferior to the route through Egypt.

It is only, indeed, in the possible event of the Tigris and Euphrates valleys falling into the hands of an European power that we can look with any hope to the construction of railways, or the scientific embankment of the rivers, or the excavation of canals, or any of those measures of internal improvement which, however, if executed with care and skill, would soon restore these now desolate regions to their former exceptional condition of populousness, wealth, and general prosperity.

EUPION, a hydrocarbon of the paraffin series, discovered by Reichenbach in wood-tar. It is a colorless and highly volatile and inflammable liquid, expanding considerably when heated. It is unaffected by alkalis and mineral acids, and unites directly with the haloid elements. Eupion is formed in the destructive distillation of many substances, as wood, coal, caoutchouc, bones, resin, and the fixed oils. It is most conveniently prepared from rectified bone oil and rape and hempseed oils, by treatment with sulphuric acid. Like other liquids of similar composition, it is employed for illuminating purposes, and, mixed with rape and cotton-seed oils for the lubrication of machinery.

EUPOLIS, an Athenian poet of the Old Comedy, and,

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EUROPE.

SCALE OF MILES.

100 200 300 400

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140° 145° 150°

in the judgment of Horace, ranking, along with Cratinus and Aristophanes, as the greatest of that school, was born 445 B.C. Nothing whatever is known of his personal history. With regard to his death, he is said to have been thrown into the sea by Alcibiades, who had suffered from his attack.

EUPOMPUS, one of the most celebrated of Greek painters, was a native of Sicily, and a contemporary of Zeuxis and Parrhasius, who flourished in the fourth century B.C.

EURE, a department in the northeast of France, one of the five formed out of the old province of Normandy.

EURE-ET-LOIR, a department in the northern part of France, formed out of portions of Orléanais, Maine, and Isle de France. The air is pure, and the climate mild, and not subject to sudden changes.

EUREKA, California, the county seat of Humboldt County, is a railway and telegraph town of 6,500 inhabitants.

EURIPIDES is the mediator between ancient and modern drama. All that is known about his outward life may be shortly told. He was born 480 B.C., on the very day, according to the legend, of the Greek victory at Salamis, where his Athenian parents had taken refuge. His father Mnesarchus was at least able to give him a liberal education; it was a favorite taunt with the comic poets that his mother Clito, had been an herb-seller. At five-and-twenty he brought out his first play, the *Peliades*, and thenceforth he was a tragic poet. At thirty-nine he gained the first prize, and in his career of about fifty years he gained it only five times in all. Throughout life he had to compete with Sophocles, and with other poets who represented tragedy of the type consecrated by a splendid tradition. It was but natural that the judges should crown works of that school more frequently than the brilliant experiments of an innovator.

The infidelity of two wives in succession is alleged to explain the poet's tone in reference to the majority of their sex, and to complete the picture of an uneasy private life. He appears to have been repelled by the Athenian democracy, as it tended to become less the rule of the people than of the mob. Thoroughly the son of his day in intellectual matters, he shrank from the coarser aspects of its political and social life. His best word is for the small farmer who does not often come to town, or soil his rustic honesty by contact with the crowd of the marketplace.

About 409 B.C., Euripides left Athens, and after a residence in the Thessalian Magnesia, repaired, on the invitation of King Archelaus, to the Macedonian court, where Greeks of distinction were always welcome. The death of Euripides, whatever its manner, occurred in 406 B.C., when he was seventy-four. Sophocles followed him in a few months, but not before he had been able to honor the memory of his younger rival by causing his actors to appear with less than the full costume of the Dionysiac festival.

The historical interest of such a life as that of Euripides consists in the very fact that its external record is so scanty—that, unlike *Æschylus* or *Sophocles*, he had no place in the public action of his time, but dwelt apart as a student and a thinker. He has made his *Medea* speak of those who, through following quiet paths, have incurred the reproach of apathy. Undoubtedly enough of the old feeling for civic life remained to create a prejudice against one who held aloof from the affairs of the city. Quietness in this sense, was still regarded as akin to indolence. Yet just here we see how truly Euripides was the precursor of that near future which, at Athens, saw the more complete divergence of society from the state.

In a poetical career of about fifty years, Euripides is said to have written ninety-two dramas, including eight satyr-plays. The best critics of antiquity allowed seventy-five as genuine. The most celebrated of these are *Medea*, *Andromache*, *Ephigenia*, *Ion*, *Helena*, and *Alceste*.

EUROPA, in Greek mythology, a daughter of Agenor, or, as some said, of Phoenix. The beauty of Europa attracted to her the love of Zeus, who approached her in the form of a white bull, and carried her away to Crete, where she became the mother of Minos, Rhadamanthus, and Sarpedon.

EUROPE is the smallest of those divisions of the land-surface of the globe which are usually distinguished by the conventional name of continents; but favored as it is at once by its position, its configuration, and its climate it has played the most important part in the modern history of the world, more especially since the sixteenth century. The ultimate civilization of mankind must in great measure be what Europe makes it. All its dominant and, perhaps, nearly all its distinguishable peoples, its languages, its religions, its philosophies, its social organizations, have had their origin outside of its boundaries, and have been forced by modern science to recognize their kindred elsewhere. But under its modifying influences everything has been deeply and permanently differentiated; its people are more thoroughly conscious of their dissimilarities from, than of their consanguinity with, the peoples of the East and the South; its dominant religion at least has in large measure forgotten or belied its original character and scope; its philosophies have taken coloring and shape from the practical and political life of the people; and its social organizations have been disintegrated and re-formed under the pressure of new necessities and desires. And in a way in which they have never been realized before, it has within the present century realized two master principles of progress—the regularity of nature and its amenability to multiplex investigation and control, and the necessity of impartial recognition at once of the moral individuality of the individual and the social and political solidarity of the several members of the community.

Though Europe is naturally the best known of all the regions of the globe, yet even of its physical features an absolutely correct registration has not been attained.

The total area of the continent is 179,833.37 German square miles, 9,902,149 square kilometers, or 3,823,383.32 English square miles; so that it forms rather more than a thirteenth part of the whole land surface of the globe. The total population in round numbers is 309,178,300, which gives an average of 1,719 for the German mile, 31.2 for the square kilometer, and 80.8 for the English square mile—considerably more than the average of any other of the continents.

Two of the most striking features in the general conformation of Europe are the great number of its primary and secondary peninsulas, and the consequent exceptional development of its coast-line—an irregularity and development which have been the most potent of the physical factors of its history. The peninsulas which are of most historic interest are those which trend southward into the Mediterranean—the Balkan peninsula terminating in the wonderful cluster of peninsulas and islands which bears the name of Greece, the long Italian peninsula with Sicily at its foot, and the massive Pyrenean peninsula, so thoroughly shut off by its mountain isthmus that in ordinary language it is distinguished as the Peninsula par excellence. The northern peninsulas are much less symmetrical in their arrangement, and have exercised less influence on the history of Europe. The total coast-line is estimated at 19,820

miles, of which about 3,600 belong to the Arctic Ocean, 8,390 to the Atlantic, and 7,830 to the Black Sea and Mediterranean. This gives one mile of coast to 192 miles of area, which is a higher rate than that of any of the other continents.

The coast-line of Europe is in its general features very much the same as it was at the commencement of the true historic period.

The changes have taken place so gradually for the most part that it requires careful observation and comparison of data to establish their reality. The Dutchman does not feel the subsidence of his well-defended flats, and the Norwegian is quite unconscious that he is being raised along with his pine-clad hills. It is very different with those changes which we usually ascribe to volcanic agency: they force themselves on the attention, and find a permanent place in the memory of the people. And yet it is only the scientific registration of the phenomena which gives any accurate idea of their frequency and extent. To the popular apprehension Europe is a fairly stable portion of *terra firma*, and we are accustomed to contrast the uncomfortable tendency to oscillation exhibited by such a region as Colombia or Peru in South America. Besides the great outlying "hearth" of Iceland, there are four centers of volcanic activity in Europe—all of them, however, situated in the Mediterranean. Vesuvius on the western coast of Italy, Etna in the island of Sicily, and Stromboli in the Liparian group, have been familiarly known from the earliest historic times; but the fourth has only attracted particular attention since last century.

The region was evidently highly volcanic at an earlier period, for Milo, one of the nearest of the islands, is simply a ruined crater still presenting smoking solfataras and other traces of former activity. The present crater of Santorin is subaqueous, but it has already raised a considerable mass of material above the surface. The devastation produced by the eruptions of the European volcanoes are usually confined within very narrow limits; and it is only at long intervals that any part of the continent is visited by a really formidable earthquake. Minor shocks, however, are exceedingly numerous. Doctor Volger found, that during the first fifty years of the nineteenth century the average number per annum was, in Switzerland, no less than fifty; and he indicates the following localities as areas of frequent disturbance: (1) in the region of the Jura, the valley of the Birs to the south of Basel, the valley of the Orbe, the Val de Travers, the valley of St. Imier, the district at the confluence of the Aar and the Limmat, etc.; and (2) in the Alpine region, the valley of the Durance and the Drac, of the Arc and the Isère, nearly the whole line of the Arve, the upper valley of the Rhone almost without interruption to the Lake of Geneva, part of the valley of Adige to the south of Trent, and the valleys of the Drave and the Gail to the west of their confluence. A table drawn up by Doctor Suess registers about 116 earthquakes in Lower Austria from 1021 down to 1870, and of these fifty-three belong to the present century. Of all European earthquakes in modern times, the most destructive are that of Lisbon, in 1755, and that of Calabria, in 1783; the devastation produced by the former has become a classical instance of such disasters in popular literature, and by the latter 100,000 people are said to have lost their lives. Calabria again suffered severely in 1865 and 1870.

If Russia be left out of account, Europe may be generally characterized as a mountainous region. There are none of the individual mountains that attain more than a moderate elevation if they are compared with the mountains of Asia and South America. Mont Blanc, the loftiest of all, has an altitude of only 15,781

feet, while Everest, in the Himalayas, is 29,000 feet high, and Chimborazo and Aconcagua, in the Andes, are respectively 20,677 and 23,910.

If the European mountains are arranged according to their greatest elevations, they rank as follows: (1) the Swiss Alps, with their highest peaks 15,000 feet or upward; (2) the Sierra Nevada, the Pyrenees, and Etna, about 11,000 feet; (3) the Apennines, the Corsican Mountains, the Carpathians, the Balkans, and the Despotto Daghi, from 8,000 to 9,000; (4) the Guadarrama, the Scandinavian Alps, the Dinaric Alps, the Greek Mountains, and the Cevennes, between 6,000 and 8,000; (5) the mountains of Auvergne, the Jura, the Riesengebirge, the mountains of Sardinia, Majorca, Minorca, and the Crimea, the Black Forest, the Vosges and the Scottish Highlands, from 4,000 to 6,000.

In various parts of Europe, more particularly in calcareous regions, there are subterranean or partially subterranean rivers. Of these the most remarkable are the Sorgue of Vaucluse, the Tourné of Angoulême, the Timavo of Istria, and the Poik of Planina. The first has been traced for ten or fifteen miles below ground; and the Timavo when it issues from the mountain is already navigable.

Several of the more important rivers are of very irregular flow, and some are subject to really formidable floods. In 1877 there were disastrous inundations of the Danube; 12,000 people were rendered homeless in one of the suburbs of Buda Pesth. The floods in the Netherlands the same year were severe enough to necessitate government help for the sufferers. Large areas in Saxony and Silesia were under water; the Elbe, the Vistula, the Nogat, and the Oder, all overflowed their banks or burst their dikes. The floods of the Loire alone, in 1856, carried off about £8,000,000 worth of property; and those in the South of France in 1875 caused a loss of about £3,000,000. In most continental countries there have been consequently undertaken extensive engineering works, partly to prevent inundations, and partly to render the rivers more serviceable for navigation and irrigation. France has been especially active in this matter, several of her most important streams being very difficult to regulate. The engineering works have been especially successful on the Seine and Yonne, where several new methods have been tested for storing the surplus water of one season, and utilizing it during the period of deficient supply. In Italy the Po, the Arno and the Tiber are notorious for their floods; but the first two are now, among the most striking examples of a satisfactory system of embankment.

Since the city of Rome has again become the capital of Italy the attention of the Italians has been specially turned to the Tiber, and several schemes of Herculean magnitude have been discussed. Garibaldi's project was adopted by both houses of the Parliament and sanctioned by the Government in 1875. During the present century the Danube, which is the most international of European rivers, has been greatly improved as a waterway by the rectification of its course in the neighborhood of Vienna, by the clearing of the passage of the Iron Gates, and by the maintenance of a proper channel at the Delta. The Alpine lakes break up into a southern and northern subdivision—the former consisting of Lago Maggiore, Lago di Como, Lago d'Iseo, and Lago di Garda, all connected by affluents with the system of the Po; and the latter the lake of Geneva threaded by the Rhone, Lakes Constance, Zurich, Neuchâtel, Biel, and other Swiss lakes belonging to the basin of the Rhine, and a few of minor importance belonging to the Danube. As factors in the historical development of the Alpine countries the first rank must

be assigned to Geneva, Constance, and Como. Next in interest to the Alpine group comes the Swedish — Wener, Wetter, Mälär, and Hjelmar, lying between the Baltic Sea and the Skagerrack, and nearly as famous as their Scotch and English rivals for the beauty of their scenery. The North Russian lakes, Ladoga, Onega, etc., are mainly noticeable as the largest members of what in some respects is the most remarkable system of lakes in the continent — the Finno-Russian, which consists of an almost countless number of comparatively small irregular basins formed in the surface of a granitic plateau. Nearly all the rivers of Sweden, have their origin in a lake or tarn; and the same is the case with many of the streams of the northern Pyrenees. The total area of the lakes is no less than 28,450 square miles, or about the united area of the Netherlands and Switzerland.

Europe is richly furnished with mineral wealth, and the distribution is not so irregular as might appear from the actual state of the mining industry in the different countries. For the precious metals it is mainly indebted to other quarters of the globe, but it possesses abundant stores of iron ores, lead, copper, coal, and salt. Britain, Germany, and the countries of the Austrian-Hungarian monarchy are especially distinguished by the value and variety of their deposits; and Belgium and Sweden are largely indebted for their national prosperity, the one to its coal and the other to its iron. Spain naturally ranks high in this department, but the working of its mines is in a backward condition. In the lands of the Turkish empire matters are still worse, and Greece has comparatively little to show except the silver mines of Laurion. Roumania exports salt and petroleum, and Servia, since it became independent, has begun again to work its iron and copper mines. In the Russian empire there are valuable coal-beds in the European territory, but the richest mineral area lies on the Asiatic side of the Urals.

Platinum has hitherto been obtained nowhere in Europe except in the auriferous sands in the Russian government of Perm, which yield from 900 to 1,000 kilogrammes a year. Gold, on the other hand, is widely diffused, but it occurs for the most part in such insignificant quantity as not to repay the expense of collecting.

The four great determining facts in regard to the climate of Europe are these: its northern borders are within the arctic circle; in the south its most southern points are nine degrees of latitude from the tropic of Cancer; to the east extends for 5,000 miles the continuous land surface of Asia; to the west lie the waters of the Atlantic. Of minor but by no means small importance are the presence of the Mediterranean along the south, and the peculiar character of the African continent. To the ameliorating influence of the ocean must be ascribed the main features that distinguish the climate from that of the corresponding portions of Asia, and assimilate it so largely to the insular type. Like other great masses of water, the Atlantic is less exposed to rapid thermometric oscillations than the surface of the land, and its contiguity tends to produce a similar stability. Slowly but continually it is surrendering the heat which it has gathered in the regions of the sun. Part of the work is done directly by means of currents, part indirectly by means of winds.

As regards its rainfall Europe belongs in the main to the zone which is characterized by irregularity of seasonal distribution; its southern portions to the sub-tropical zone distinguished by the dryness of its summers. Within the sub-tropical zone the maximum rainfall occurs during winter in the south of Spain and Italy; during autumn and spring in central and northern Spain, the south of France, and northern and central Italy.

In the zone of irregular distribution Scotland, Ireland, and western England have their maximum in winter; western France, eastern England, the coast regions of the Low Countries and Denmark, and the greater proportion of Norway have theirs in the autumn; while in eastern France, the German Empire, Austria, Hungary, Russia, and Sweden it falls in summer. The general conditions that determine the quantity of rain in a given district are well known — the height and direction of the mountains, proximity to the coast, and so on. As most of our rain is brought by southwest and west winds, the western parts of the continent have on the whole a heavier rainfall than the eastern; though to the south of the Alps and the Pyrenees the relief of the peninsulas, and the presence of such a large secondary reservoir of evaporation as the Mediterranean, produce great irregularities.

In Western Europe by far the most prevalent wind is the southwest or west-southwest. It represents 25 per cent of the annual total; while the north is only 6 per cent, the northeast 8, the east 9, the south 13, the west 17, and the northwest 11. Of the summer total it represents 22 per cent, while the north is 9, northeast 8, east 7, southeast 7, west 21, and northwest 17. In southeastern Europe, on the other hand, the prevailing winds are from the north and east — the east having the preponderance in winter and autumn. Of local winds the most remarkable are the Föhn, in the Alps, distinguished for its warmth and dryness; the Rothenihurm wind of Transylvania, which has similar characteristics; the boro of the Upper Adriatic, so noticeable for its violence; the mistral of southern France; the Etesian winds of the Mediterranean; and the sirocco, which proves so destructive to the southern vegetation.

The snow-line is subject, as is well known, to great local variations. In the Western and Central Alps, it lies about 8,860 feet above the sea, and in the Eastern Alps, on an average, about 330 feet higher. In exceptional instances, of course, the snow disappears at a much greater altitude, and even such summits as the Jungfrau (13,671 feet), the Strahlhorn (13,750), and the Chaberton are occasionally stripped completely bare. The whole range of the Pyrenees, where the line usually lies about 8,950 feet on the north side, and about 10,000 on the south, is sometimes in the same condition. In Norway, toward the North Cape, the snow-line is 2,360 feet, in the island of Seiland about 3,200, on Sulitjelma about 3,970, on Dovre 5,540, on Jotune, 4,910, on Sululand 5,300, and at Folgefonden, 4,800 — a difference of from 400 to 1,000 feet being observable between the eastern and western side of the Peninsula, mainly due to the more abundant precipitation on the latter.

Of the principal botanical regions of Europe, according to Schouw's nomenclature, the Mediterranean countries belong to the region of Labiatae and Caryophyllaceae; the countries of northern Europe, about as far as the neighborhood of the arctic circle, to the region of Umbelliferae and Cruciferae; and the small remaining portion to the region of the Saxifragae and Mosses. The varying relief of the continent, and the consequent variety of climatic conditions, give rise to many inflections of this general rule — the most remarkable being furnished by the Alps, which are high enough to have a large arctic area, and by the steppes of Russia, which, as is well known, also afford a peculiar environment. Hinds, reckoning all known species of plants at 134,000, allows 11,200 to Europe. The total number of so-called useful plants, cultivated in European gardens, is from 2,400 to 2,500. The vine, the olive, the fig tree, and the mulberry, were brought from Syria or Asia Minor by the Greeks; the Arabians introduced the cotton plant; the walnut and the peach are origin-

ally from Persia, the apricot from Armenia, and the sugar-cane and the orange from China. The leek and the onion, the mustard plant and the cummin, the laurel and the myrtle, are all Asiatic. For the pomegranate, we are probably indebted to the Phœnicians, and the quince still bears the name which it received from the town of Cydonia in Crete. The cypress is a native of the neighborhood of Herat, the plane tree of the Taurus, the chestnut, possibly of Armenia. Lucullus, the conqueror of Mithradates, brought the first cherry-tree to Europe; and some less famous Roman, of the first century after Christ, was the introducer of the pistachio. Maize, tobacco, and the potato, are well known to be of American origin, and the same is the case with the agave and the opuntia, two of the most characteristic plants of the Mediterranean region. The scarlet oak was brought from North America to England in 1691; the cedar of Lebanon was first planted in British soil in 1683; and, among recent additions, are the Douglas pine from the Rocky Mountains, the deodara from the Himalayas, the *Wellingtonia gigantea* from California, and the *Eucalyptus Globulus* from Australia. The last is being planted in thousands in southern Europe, and has produced a greater sensation than perhaps any other botanical stranger.

The most important economical position is held by the cereals. Wheat is most extensively cultivated in Russia, Austria, the Danubian principalities, France, England, and Germany. Spelt is mainly cultivated in southwestern Germany, Switzerland, and Belgium. Barley is cultivated in West Finmark, and is part of the usual crop in all countries of the continent. Oats are more frequent in the central and northern regions. Rye is an important crop in nearly all the great grain-growing countries, but it is especially in favor in the east and north. Maize is extensively cultivated only in the southern parts of the continent. Sorgho from China, and a few other foreign cereals have been successfully introduced, but are hardly anything more than agricultural curiosities. The next place belongs to the potato, which has spread over an enormous area in central and northern Europe. The greatest producers are Germany, Belgium, Sweden, the Netherlands, Norway, and Switzerland. A considerable variety of leguminous plants are grown in Europe either for their fruit or forage — beans, peas, lupines, clover, lucerne, sainfoin, etc. A species of lupine furnishes a substitute for coffee both in Norway and Tyrol. The vine can be grown without protection in southern Scandinavia, and has been known to ripen its grapes in the open air at Christiansund.

The following is the average wine production of the several countries: — France, 924,000,000 gallons; Italy, 30,300,000; Austria-Hungary, 23,000,000; Spain, 20,000,000; Germany, 4,440,500; Switzerland, 1,155,000; Greece, 1,150,000; Roumania, 1,000,000; Russia, 614,000. A special Greek variety of vine is the source of the currants of commerce; it is cultivated in the Peloponnesus, Cephalonia, Zante, Ithaca, and Santa Maura, and yields an annual average export of 128,000,000 pounds. The olive, with its double crop, is one of the principal objects of cultivation in Italy, Spain, and Greece, and is not without its importance in Portugal, Turkey, and southern Austria. The average total of the oil harvest in these countries amounts to about 140,000,000 gallons; and of this Italy alone produces about 66,000,000.

Besides the turnips and other roots which furnish so much of the winter fodder required by the northern farmer, the beet holds an important economic position in central Europe as a producer of sugar. Tobacco is extensively grown from Sicily to Sweden, but its

cultivation is forbidden in England, Spain, and San Marino, and in Austria it is a state monopoly. It receives special attention in Turkey, Greece, Russia, Germany, France, and Switzerland. Hemp and flax have a very wide distribution, the former furnishing a valuable export to Archangel in the north and to Italy in the south. Among all European countries Russia is the greatest producer; during their church fasts her vast population make an enormous consumption of hemp oil. Hop growing is hardly known in the south, but forms an important industry in England, Austria, Germany, and Belgium. The plant grows wild in Norway. Among the exotics exclusively cultivated in the south are the sugar-cane, the cotton-plant, and rice. The first, which is found in Spain and Sicily, is of little practical moment; the second holds a secondary position in Turkey and Greece; and the third is pretty extensively grown in special districts of Italy, more particularly in the valley of the Po. Of the vast number of fruit trees which flourish in different parts of the continent, only a few can be mentioned. Their produce furnishes articles of export to Austria-Hungary, Germany, France, Belgium, Italy, and Spain. In Sardinia the acorn is still used as food, and in Italy, France, and Austria the chestnut is of very common consumption. In the Mediterranean region the prevailing forms are the orange, the citron, the almond, the pomegranate, the fig, and the carob-tree. The importance of these fruits to Italy and Spain is too well known to require more than passing mention. Sicily, which was one of the great granaries of the Roman empire, is now almost a continuous orchard. In recent years a new kind of pistachio has been cultivated in Spain, and its fruit extensively exported. The palm trees have a very limited range; the date palm ripens only in southern Spain with careful culture; the dwarf palm forms thickets along the Spanish coast and in Sicily, and appears less frequently in southern Italy and Greece.

The Scandinavian countries have a large timber trade.

When the Aryan people began their immigration into Europe a large part of the surface must have been covered with primeval forest; for even after long centuries of human occupation the Roman conquerors found vast regions where the axe had made no lasting impression. The account given by Julius Caesar of the *Sylva Hercynia* is well known; it extended, he tells us, for sixty days' journey from Helvetia eastward. Since then the progress of population has subjected many thousands of square miles to the plough, and in some parts of the continent it is only where the ground is too sterile or too steep that the trees have been allowed to retain possession. The consumption of timber has, of necessity, been enormous, more especially on account of the climatic condition of the continent and the maritime activity of a large part of its inhabitants. Several countries where the destruction has been most reckless, have been obliged to take systematic measures to control the exploitation and secure the replantation of exhausted areas. To this they have been constrained not only by lack of timber and fuel, but also by the prejudicial effects exerted on the climate and the irrigation of the country by the denudation of the high grounds. But even now, on the whole, Europe is well wooded, and two or three countries find an extensive source of wealth in the export of timber and other forest productions, such as turpentine, tar, charcoal, bark, bast, and potash.

In Sweden and Norway the most usual trees are coniferous; but, in the former, a certain number of birches, alders, and ash trees are intermingled, and, toward the south, the oak and the beech occur. This last is the characteristic tree of Denmark; though some other

species, which were common in the prehistoric period, are not without importance, and coniferous trees have been again introduced. The Russian forest area is mainly in the northern part of the country, but it is separated from the Arctic coast by a wide, treeless belt. Toward the south there are no great stretches of woodland, and, for the most part, the only trees are found along the banks of the rivers. The Mennonites, on the Sea of Azoff, have formed plantations, and there are others. The most widely distributed tree is the pine; and, of the deciduous trees, the most frequent are the birch, the aspen, and the oak. In the north of Russia alone the annual production of tar amounts to 297,000,000 lb. In Austria-Hungary there is still abundance of wood, especially in the Alps and the Carpathians; but, in some quarters, more particularly in Transylvania, the most reckless destruction is allowed to take place. The principal trees are the pine, the fir, the beech, the oak, the larch, and the hornbeam; next come the ash, the elm, the maple, and the birch; and in the third place, the acacia, the poplar, and the *Götterbaum*. In Germany, the pine and fir are most frequent in the south, and the oak and birch in the west and southwest; while in the central district coniferous and deciduous trees are about equally common. In no part of Europe are the forests under more judicious management. France is most indebted to the oak, the birch, the chestnut, the fir, and the pine; but they fail to satisfy the home consumption. The poplar gives a peculiar character to its southern landscapes, and the chestnut furnishes a valuable addition to its alimentary resources. Italy has a rich variety of types — the silver fir and other conifers, the cork-tree, and other oaks, the chestnut, the sycamore, the mountain ash, the evergreen oak. It exports manna, which is obtained from the ash tree, galls, and turpentine. Switzerland not only supplies a great internal demand for timber, but is able to contribute to foreign markets. The common trees are, for the most part, the same as in Austria-Hungary. In Spain and Portugal the first rank as an economic factor belongs to the cork tree, which yields in the former country about £3,820,000 worth of bark for export, and gives employment to thousands of the population. The oak, the red birch, the chestnut, the cypress, the plane, and several conifers, are also of importance.

On the distribution of animals, Europe belongs to the great-Palaearctic Region, which also includes the most part of the continent of Asia and a broad belt along the north of Africa.

The "European" sub-region contains two distinctive genera of mammals, the musk-rat and the chamois, and its characteristic forms are the mole, the hedgehog, the shrew, the badger, the bear, the wolf, and the fox, the weasel, the otter, the hare and the rabbit and the dormouse. In the Mediterranean sub-region a similar position is held by the fallow deer, the civet, the hyena, and the porcupine. The cosmopolitan bats are well represented — no fewer than thirty species of the family alone being described. Perhaps the most common species throughout central Europe is the ordinary British bat. The common hedgehog is universally distributed. The brown bear is still found in the Pyrenees, here and there in the Alps, in the Carpathians, and the Scandinavian mountains; and his polar cousin is met with along the arctic coasts. To the general distribution of the badger there appears to be no exception. The glutton is for the most part confined to the forest regions of the countries that border the Arctic Ocean. The polecat and the weasel, the martin, the pine-martin, and the ermine, all of which are pretty familiar in most of the sub-region, though it is only in the colder countries that their value as fur-bearers is developed. An important place in

the fauna of Europe is still held by the wolf and the fox, the former being from its numbers the most formidable of man's feral antagonists. It will be a long time ere the more mountainous countries of the continent can boast, like Britain and Ireland, that their last wolf is killed. Russia will probably for many generations have to renew their annual battles with the famished packs. It is indeed asserted that since the abolition of serfdom the number of wolves has considerably increased, since the peasants are no longer obliged, as they formerly were by their landlords, to organize regular hunting expeditions. Besides the common or gray wolf, of universal distribution, there is a black species, of less frequent occurrence. The jackal is found in southern Russia, Greece, and Turkey. In spite of the keen pursuit to which they are subjected the seals may still be seen, though in much diminished numbers, on the shores of all European seas, including the Baltic and the Caspian. It is doubtful whether we should include the walrus in the list of European fauna, though it is common about Spitzbergen, and occasionally appears pretty far south. The next animal which presents itself in the ordinary system of classification is one of the most interesting, on account of its rapid disappearance before the march of civilization. The natural limits of the beaver were between 33° and 67° N. lat., and within that area it was formerly present in great numbers. On the coasts of the Black Sea, where it was abundant in the beginning of the Christian era, it is no longer to be found, and it is about 500 years since it disappeared from England. Its present habitats are mainly in Poland, Russia, Sweden, Finland, and Lapland. It has left its mark on our geographical nomenclature in such names as Biberach, Biberburg, and Beverley. Equally notorious for their destructive capabilities, and much more general in their distribution, are the rats and mice. The most prevalent species, or common brown rat, was first observed in Europe in 1727, but since then has taken possession of country after country and expelled several weaker congeners.

Hares and rabbits have a very wide range, and present but little variety. The ibex or steinbock is growing scarce in the Alps and Carpathians, and the wild sheep is only to be met with in Sardinia and Corsica, part of Spain, and some of the Greek islands. The chamois, however, is still fairly common in the Alps of Switzerland, France, and Germany, in the Apennines, and the Carpathians, and also in Greece. The only proper antelope occurs but rarely in the country to the north of the Black Sea. Fallow deer are found wild in Spain and Sardinia, but elsewhere are protected by men. The elk is still to be met with in Lithuania, Russia, and Scandinavia; the red deer in Scotland, Scandinavia, Germany, and Spain, and the roebuck in the Scottish Highlands, the Apennines, the Carpathians, and the Sierra de Segura. Of the great Pachydermatous order, which has left such abundant remains of its hippopotami, elephants, and woolly rhinoceroses in our Pleistocene formations, the only representative in a feral condition is the wild bear, which is found in various regions from Spain to the Caucasus, but does not venture north of the Baltic. The larger Cetacea are growing scarce in the European seas, but the common whale still comes as far south as the Mediterranean, and the spermaceti and the orqual are captured in the northern regions. The dolphins, grampuses, and porpoise are pretty commonly represented throughout the various seas, now by one species now by another.

How rich the avifauna of the European continent really is may be judged by consulting such as Gould, Sharpe and Dresser, or Bree, but the continual movements of the feathered tribes are not easily ascertained.

This has been clearly shown by C. A. Westerland in his account of the geographical distribution of the birds in Sweden and Norway. He gives a great many data which prove that southern species not infrequently move northward, and that there is a regular tendency of Asiatic and European birds to migrate to the west, while on the other hand it is well known that western winds bring American strangers to our shores. Altogether, according to Degland and Gerbe's classification, there are 247 genera and 531 species more or less belonging to the continent. Of the northern sub-region are the thrushes, warblers, ruddings, tits, pipits, wagtails, buntings, house-sparrows, linnets. The bearded vulture is the largest of European birds; it is found in gradually diminishing numbers in the French and Swiss Alps, the Ligurian Mountains, the Caucasus, and perhaps the Pyrenees. The golden eagle, which is the largest in Europe, builds equally among the rocks of the Alps, the Pyrenees, and the Grampians, and on the treeless steppes of Russia. Next in size comes the imperial eagle, which belongs to the south of the continent, and then follows a list of lesser eagles, hawks, buzzards, kites, etc., to the number of forty species more or less. The owl family counts ten species, noblest of which is the eagle-owl, or grand duc of the French, almost rivaling the golden eagle in size; it is found not only in the French mountains, but in Switzerland, Italy, Sicily, Bessarabia, and the Crimea.

From its mountain-lakes to the surrounding ocean the waters of Europe are for the most part well stocked with fish. No complete summation has been made of the number of genera and species represented; but it is suggestive of no small variety to learn that thirty-five species have been found in the lakes of Tyrol alone, lying between 200 and 8,000 feet above the level of the sea. Two genera of the perch family found in the Dniester; the stickleback found as far south as Italy; the pike, which ranges from Lapland to Turkey; the *Silurus* of the Swiss lakes and German rivers; and several members of the carp family including the carp proper, the roach, tench, bream, bleak, etc. Of much more practical importance are the Salmonidæ, among which the salmon holds the first place. This noble fish is found in all the rivers of the Atlantic versant as far south as the Loire, and especially in Scotland, Norway, and Iceland it proves an abundant source of wealth. In southern Russia, where the river-fisheries attain a development unknown in any other part of Europe, its place is supplied by the sturgeon, the sterlet, and the sevruga, and economically at least by several species belonging to the perch family, which hold an important position in virtue of their abundance. The greatest sea fisheries of Europe are those of the German Ocean, from which England, Scotland, Norway, Holland, and France have long reaped magnificent harvests, and in which Germany has more recently begun to share. The value of the sea fish exported from Britain, Norway, and Holland is about £4,000,000 per annum. It is needless to mention the names of the principal species—herring, cod, etc.; and the conger-eels of the Channel islands, the pilchards of the Cornish coast, and the sardines of France are almost as familiarly known. In the Baltic there is great abundance of various smaller kinds of fish—more particularly the sprat, the sardine, and several members of the perch family; and some of the Salmonidæ are of considerable economic importance. No less than 300,000 tons of sardines have been caught in a single year at the mouth of the Dwina.

The sponge and the coral fisheries of the Mediterranean are both vigorously pursued, the former with most success in the Ægean, and the latter on the coasts of Sardinia, Corsica, and Andalusia.

Though the reptiles as a class are represented by

about forty genera, the species are for the most part inconspicuous, and in no instance formidable. The three land tortoises are all confined to the south, and one of them has its only European habitat on the Caspian. There are as many fresh-water tortoises, but only one, reaches as far north as Prussia. The turtle is principally caught in the Mediterranean; the chameleon is peculiar to Spain. On the other hand, there is a great variety of lizards, and several are of wide distribution. The spotted skink, is found on the shores of the Mediterranean. The slow-worm, is familiar in all except the colder regions of the continent. No fewer than eighteen species of the genus *Coluber* are described—the largest of which not infrequently exceeds five feet in length, and the most widely distributed, the ringed snake, which does not exceed four feet; the common adder, is well-known in the most part of central Europe. Of the frogs and toads there are eight genera; the genus *Rana* is represented by the common and the esculent frog, the latter of which is absent only from the British Islands; common tree-frog, whose stentorian croak may be heard in every country of the continent. The salamanders and newts are represented by five genera; the genus *Triton* contains seven species.

Insects do not play so conspicuous and ostentatious a part in Europe as in some of the warmer regions of the globe; it is only in special localities or exceptional seasons that their destructive or irritating influence becomes formidable to man. There are not many towns like Fassano, where the inhabitants have in summer to leave their usual residences to the occupancy of flies; and if the European horticulturists has a hard battle to fight with caterpillars, earwigs, and wasps, he generally succeeds in gaining a fair crop after all. The mosquito and the tarantula are the most venomous of those which attack the human species. The locust, which spreads such alarm in Africa and Asia, appears in western Europe only at intervals and in demoralized detachments; though in the south of France it is found worth while to offer a reward for the collection of the insects and their eggs. In Turkey, the Danubian principalities, and southern Russia it sometimes commits tremendous ravages; and all efforts of the agricultural population are futile to check the advance of the countless swarms.

The horse holds the first place among the domestic animals of Europe, and in no other region has it developed a greater variety of type. Whether the present species is of European origin has not been quite decided; but remains of a similar form occur in the Pliocene and Pleistocene strata, and it is evident that the prehistoric peoples set the example of that hippophagy which scarcity of animal food has again introduced into Europe. Now at least there are no wild horses on the continent, though they are mentioned as late as the eighth century in a letter of Pope Gregory to Boniface. Horse-breeding is a highly important industry in almost all countries, and in several, as Russia, France, Hungary, and Spain, the state gives it exceptional support. Those which have the greatest export trade are Russia, Denmark, Austria-Hungary, Germany, the Netherlands, and Belgium. The Hungarians are a specially horse-loving people, counting in 1871 no fewer than 121 horses to the thousand inhabitants. Almost every district of the continent has a breed of its own; Russia reckons those of the Bashkirs, the Calmucks, the Don-Cossacks, the Estonians, and the Finlanders as among its best; France sets store by those of Flanders, Picardy, Normandy, Limousin, and Auvergne; Germany by those of Hanover, Oldenburg, and Mecklenburg, which indeed rank among the most powerful in the world; and Great Britain by those of Suffolk and Clydesdale. The

English racers are famous throughout the world, and Iceland and the Shetland Islands are well known for their hardy breed of diminutive ponies. The ass and the mule are most abundant in the southern part of the continent, more especially in Spain and Italy. In the one country they number about 2,320,000, and in the other about 1,000,000. A much more important beast of burden in eastern and southern Europe is the ox. The Netherlands, Denmark, Servia, Roumania, Turkey, Russia, Italy, Sweden, Spain, and Germany are all exporters of cattle. It is estimated that there are about 100 distinct local varieties or breeds in Europe, and within the last hundred years an enormous advance has been made in the development and specialization of the finer types. The cows of Switzerland and of Guernsey may be taken as the two extremes in point of size, and the "Durhams" and "Devonshires" of England as examples of the results of human supervision and control. The Dutch breed ranks very high in the production of milk.

The buffalo is frequent in the south of Europe, more especially in Transylvania and Italy; in the former country the number is about 58,000, and in the latter about 40,000. Great attention is given to dairy-farming in Great Britain, France, Germany, Switzerland, Denmark, Austria, and part of Italy. Switzerland, the Netherlands, Austria, Denmark, Ireland, and Finland are exporters of cheese or butter, or both; Italy though famous for the so-called Parmesan cheese, requires a large import, and the abundance of olive oil discourages the manufacture of butter. Sheep are of immense economic value to most European countries, and form an important article of export for the Netherlands, Germany, Austria, Hungary, Russia, Italy, Portugal, Denmark, Servia, Roumania, and Sweden. The local varieties are even more numerous than in the case of the horned cattle, and the development of remarkable breeds quite as wonderful. In all the more mountainous countries the goat is abundant, especially in Spain, Italy, and Germany. The swine is distributed throughout the whole continent, but in no district does it take so high a place as in Servia, where there are no fewer than 1,062 to 1,000 inhabitants, a proportion which more than doubles the next highest, which is afforded by Luxembourg. Spain ranks third in the list, and has a large export of hams and sausages. In the rearing and management of poultry France is the first country in Europe, and has consequently a large surplus of both fowls and eggs. The latter produce is also exported by Austria and Spain. In Pomerania, Brandenburg, West Prussia, Mecklenburg, and Württemberg, the breeding of geese has become a great source of wealth, and the town of Strasburg is famous all the world over for its *pâtes des foies gras*.

There is such a thing as race; but we cannot be said to have attained to any single test or any combination of tests which does not leave our classifications more or less uncertain. Europe in every square mile of its surface gives the lie to the supposition that consanguinity is implied by community of speech; Celts are equally eloquent in English and French; Slavonians equally enthusiastic for the dignity of Deutschland or the glory of Greece. There are, perhaps, only two peoples in Europe of whom we can be said to have anything like ethnological statistics, Jews and the Gipsies, and in both cases it is due to the fact that they have so long been treated as social or religious pariahs. It is easy to ascertain how many men in Europe use French as their mother-tongue; but we have no means, apart from historic evidence, which applies only to individual instances, of knowing whether three generations back any man's progenitor was a Corsican, a German, or a

Briton. And if there is one fact to which every new investigation gives additional emphasis it is this, that there is no nationality, and no individual component of a nationality, which can establish the purity of its blood. What to the superficial observer are the most homogeneous peoples turn out on closer examination to be only conglomerates in which the elements are better assimilated.

If the Frenchman is partly German, partly Celtic, German and Celt do not differ from each other more than limestone, marble, and chalk.

From recent researches it is now familiarly known that Europe had its human inhabitants in the Pleistocene period. They are distinguished by the name of Old Stone people, in contrast to a later population still in the same stage of civilization. Their remains have been discovered in England, Belgium, France, Germany, and Switzerland; and some investigators are disposed to recognise two varieties, distinguished as the men of the caves and the men of the river-beds. Having possibly entered Europe before the first glacial period, they were certainly there at the final transition to the present conditions of climate. They lived by hunting and fishing, and in general characteristics appear to have been similar to the Eskimo, with whom some are disposed to identify them. As far as can be judged, the continent of Europe again ceased for a time to be a human habitation; and when light breaks in once more it is found in possession apparently of two races both in the Stone stage of civilization, and known by the common name of the Neolithic or New Stone peoples. In the meantime the fauna of Europe had changed and become in the main what it still is.

There are several peoples, most of them of small numerical importance, which are undoubtedly all ns from the commonwealth of the Aryan race now dominant throughout the greater part of the continent—the Turks, the Magyars, the Finns, Estonians, and Lapps, the Votiaks, and the Basques; and we know that in the Roman period of the historic epoch the Iberians, the Ligurians, and possibly the Etruscans and the Rhetians, occupied a similar position. The Turks and the Magyars are at once put out of the question by the fact that there is documentary evidence of their arrival in Europe long after the Christian era. Four great Aryan detachments are easily distinguished, and may for convenience be designated by the very imperfect and somewhat misleading names of the Græco-Latin or Southern, the Celtic or Central, the Teutonic or Northern, and the Slavonic or Northeastern. Whether the Southern or the Celtic was the first of the two to enter Europe is altogether unknown; one offshoot from a common stock may easily maintain a nomadic or seminomadic state for a longer time than another and a later offshoot. The southern detachment was probably a succession of detachments—the first represented, it may be, by the old progenitors of the Albanians and the so-called Pelagic tribes, the second by the various tribes who settled in Italy, and the third by the Hellenic or Greek tribes.

The Greeks at least appear to have entered Europe by way of Asia Minor and the Archipelago, and the Italian tribes may have followed a similar route. A more northern line of march, or nomadic progress, was chosen by the Celts, of whose passage up the valley of the Danube we have a trace in the Boii, the Celtic people who have given their name to the now Germanized kingdom of Bavaria; they reached southern Gaul and Spain about the sixth century B.C. The Teutons or Germans began to be known to the Romans shortly before the Christian era, and in the fourth century A.D. pushed westward within the boundaries of the empire.

The Slavonians have never advanced much beyond the Elbe in the north, but toward the south they extended in the course of the ninth and tenth centuries into Austria on the one hand and Greece on the other. Of the Semitic peoples, the Jews, which are now the most important, have entered in successive detachments, more in the fashion of ordinary immigrants; the Arabs, who contributed largely to the progress of European civilization, but have left little trace of their blood except in southern Spain, crossed into that country in 710. The settlement of the Hungarians dates from the tenth century, and that of the Ottoman Turks, the last great addition to the ethnological conglomerate of Europe, dates no further back than the fourteenth.

Although language is no test of race, it is the best evidence for present or past community of social or political life; and nothing is better fitted to give a true impression of the position and relative importance of the peoples of Europe than a survey of their linguistic differences and affinities. There are still about sixty distinct languages spoken in Europe, without including Latin, Greek, Old Slavonic, and Hebrew, which are still used in literature or ecclesiastical liturgies. English, French, German, Russian, Italian, and Spanish will probably for a long time share the real dominion of Europe; Dutch and Scandinavian tongues will maintain their ground, but they hardly give promise of expansion; Bohemian, Hungarian, and the South-Slavonic have made good their position; and Neo-Hellenic, under favoring circumstances, may get possession of the territory of its nobler ancestor.

In 1877, the European territory was distributed among eighteen distinct political totalities (exclusive of the petty states of San Marino, Andorra, Monaco, and Luxembourg), viz.—the German empire, the Russian empire, the Ottoman empire, the united monarchy of Austria-Hungary, the united kingdom of Great Britain and Ireland, the republic of France, the kingdoms of Italy, Spain, and Portugal, the kingdoms of Belgium and of the Netherlands, the kingdom of Denmark, the united monarchy of Norway and Sweden, the kingdom of Greece, the republican confederation of Switzerland, and the principalities of Montenegro, Servia, and Roumania. Several of these consist of a greater or smaller number of partially independent states connected with each other according to very different degrees of political copartnery. The German empire, as one of the most recent as well as most extensive, naturally presents an unusual number of anomalies. Founded April 16, 1871, it comprises no fewer than twenty-six states under the presidency of the kingdom of Prussia, and these states are very dissimilar in size, constitution, rank, and general importance. Four, including Prussia, are kingdoms, six are grand-duchies, five are duchies, seven are principalities, and three are free cities. The organization by which they are united consists mainly of a federal council or *Bundesrath*, in which the individual states are represented by the nominees of their several governments, and a *Reichstag*, or Imperial Diet, the members of which are elected by universal suffrage. All military power is centralized in the hands of the emperor: his consent is necessary for all important appointments in the different divisions of the army, and he can command the erection of fortresses on the soil of any of the states, and if occasion requires can declare any part in a condition of siege. The practical dominancy of Prussia is further secured by the fact that it possesses 236 of the 397 members who compose the Imperial Diet. As separate states, Prussia, Württemberg, Saxony, and Bavaria are all constitutional monarchies, each with its parliament or *Landtag*, consisting of an upper and a lower house. The various grand-duchies, duchies, and princi-

palities have their several *Stände*, or states, some consisting of two chambers and some of one, and presenting considerable variety in the amount of representation accorded to different elements of the community, in the rules of election, and in the length of period for which it is valid.

That unusual combination of geographical names, Austria-Hungary, and its equally unusual adjective, Austrian-Hungarian, which are so uncouth and bewildering to the ordinary reader, are an attempt to indicate the relation of complete political equality established between the two great sections of what is popularly known as the Austrian empire. Each has its own parliament—in Austria called the *Reichsrath* or Imperial Council, and in Hungary the *Reichstag* or Imperial Diet; each its own ministers, budget, and other administrative machinery; and the transactions between the two countries not infrequently show like the transactions between two independent powers. The same person is monarch over both, and the united army is under his command, but there practically the unification ceases. Russia is an hereditary monarchy, nominally governed by the absolute will of the emperor or czar, but really by this in combination with a system of four great councils. Finland still retains its separate parliament, instituted in 1772, and supplemented by an imperial senate under the presidency of a governor-general. Switzerland is a confederation of twenty-two states, with a republican government. The supreme legislative power is in the hands of a federal assembly, which is composed of a national council or *Nationalrath*, and a council of states or *Ständerath*—the members of the former being chosen by the people of Switzerland in general, and the members of the latter by the people of the individual cantons. The executive power is intrusted to a federal council, and the highest judicial authority to a federal tribunal, consisting respectively of seven and eleven members, nominated for three and six years by the federal assembly. Sweden and Norway are two kingdoms under one king, with separate government, constitution, and laws. In Sweden the legislative power is mainly in the hands of the diet, which consists of two elective chambers, while the executive is in the hands of the king and a council of state. The constitution of Norway is rather more democratic: the full legislative power belongs to the Storting, and the king has no right of veto if the same bill passes three times. The common affairs of the two countries are decided in a council of state consisting of representatives of each.

Such are the most abnormal political arrangements in Europe. Britain, Belgium, Denmark, Italy, the Netherlands, Portugal, Spain, Roumania, Servia, are hereditary monarchies, with a parliament of two chambers and a responsible ministry. Greece differs in as far as it has only one chamber. Montenegro is an hereditary monarchy, with a senate; Monaco an hereditary principality, with a council of state; and Andorra and San Marino are both republics, with a general council.

It may be safely affirmed that the population of Europe has been steadily increasing since the time of the great Revolution, though it is impossible to ascertain exactly the average rate. The number in 1787 is said to have been 144,000,000; at the peace of 1815, 180,000,000; in 1833, according to Balbi, 227,000,000; in 1854, 258,778,850; and in 1874, according to Behm and Wagner, 309,178,300. If the earlier estimates, which are little better than guesses, even approximate to the truth, we would have in fifty-nine years an average annual increase of 1,850,000. In England and Prussia rather more than 1 per cent of increase takes place every year, while in France during the greater part of

the century the gain has been considerably less, and in exceptional years there has even been a decrease. Two causes have greatly diminished the growth—war and emigration. Since 1820, Germany has contributed about two million inhabitants to the United States alone; since 1815, Great Britain and Ireland have seen no less than from eight to nine millions of their populations leave their shores forever. The drain on other countries, however, has been much less—France, for example, counting her loss by emigration in the ten years from 1849 to 1858, as 200,000, and Austria her loss from 1850 to 1868 at no more than 58,000.

The general rule that, other conditions being equal, the population decreases with the elevation of the country, holds especially true of Europe. None of its larger cities lie far above the sea level.

The districts of densest population, or nearly 400 to the square mile, are the lower valley of the Thames, the neighborhood of Newcastle, and the area which includes Liverpool, Birmingham, Sheffield, and Leeds, in England, the district between Boulogne and Liège, the neighborhood of Cologne and Elberfeld-Barmen, the valley of the Rhine for some distance above the junction of the Maine, part of the valley of the Neckar, the country to the south of Leipsic, the vicinity of Prague, a large portion of the valley of the Po, especially round about Milan, the neighborhood of Naples, and a little district round about Oporto. The same low figures are applicable to the whole Scandinavian peninsula, with the exception of the most southern part of Sweden, which, with eastern Denmark, attains a ratio of 150 per square mile. In a large part of Norway, indeed, as well as in both the north and the southeast of Russia, the ratio is not more than from three to five. The only other portions of the globe which reach the highest European density are the valley of the Ganges, part of the Chinese empire, and possibly some parts of Central Africa.

The numerical relation between the sexes is different in different countries as well as in the differently constituted portions of the same national community. The most prominent causes that interfere with the equilibrium are the greater destruction of men in time of war, and the greater removal of men by emigration.

Portugal and Greece represent the two extremes—the former having far above the normal number of females, or 1,088 to every 1,000 males, and the latter far above the normal of males, or nearly 1,072 to every 1,000 females.

During the present century the industrial development of the more advanced countries has led to a remarkable aggregation of the people into cities, and facilities of travel have in many cases caused a large part of the city population to take up their residence in suburbs more or less separate from the central nucleus.

An enormous increase has taken place since the French Revolution, and, indeed, within a much shorter period, in the size of the military establishments throughout Europe. The rivalries and jealousies of the various nations have led them to vie with each other in the strength of their armies and navies; and as it is impossible to withdraw more than a certain number of men from productive labor to non-productive drill and display, a strange return, under greatly modified conditions, has been made to that earlier state of society in which the army was the whole mass of the male population capable of bearing arms. Universal obligation or liability to personal service as a soldier is recognized by Germany, Austria, Hungary, Greece, Italy, France, Spain, Portugal, Denmark, Switzerland, and Turkey. In Belgium the army is recruited by conscription, in Russia mainly by conscription, and in

the Netherlands and in Norway and Sweden partly by conscription and partly by voluntary enlistment. According to the Swiss constitution, there can be no standing army within the federal territory. The following table gives an estimate of the military forces of the principal states in 1859 and 1874:

	1859.		1889.	
	Total Army.	Available for Offense.	Total Army.	Available for Offense.
Germany.....	836,800	483,700	1,492,000	490,000
Austria-Hungary...	634,400	443,800	1,177,644	203,000
Russia (European)...	1,134,200	604,100	2,151,000	800,000
France.....	640,500	438,000	2,000,000	556,450
Italy.....	317,650	156,450	2,300,000	205,889
Belgium.....	80,250	53,800	154,638	50,000
Netherlands.....	58,550	42,200	184,000	65,000
Great Britain.....	245,800	77,300	618,000	13,000
Denmark.....	57,550	38,450	50,502	30,000
Sweden and Norway	134,900	46,300	126,000	58,000
Total	4,230,550	2,459,750	10,253,784	2,739,339

The maritime nations, almost without exception, maintain a considerable navy for warlike purposes; and the greater powers have lavished their wealth on experiment after experiment in the endless task of mutual competition for the most destructive and indestructible fleet. In 1877-8 Britain had fifty-eight ironclads (of which forty-seven are described as efficient), France fifty-eight, Germany twenty, Russia twenty-nine, Austria-Hungary fourteen, Italy sixteen, Turkey fifteen large and eighteen small, Spain ten, and the Netherlands seventeen.

A most important result of the military expenses of the different countries has been the extraordinary development of national debts. In 1848 the total for all the European states was about £1,700,000,000; by 1873 it had increased to £4,680,000,000, or at the rate of £119,000,000 annually. Each successive war—the Crimean, the French-Austrian, the Prussian-Austrian, and the French-German—has added to the load.

The commerce of Europe may be said to have had its beginning when the people of the early stone period bartered on from horde to horde the flint or jade best fitted for their weapons, and there is reason to believe that far back in prehistoric times the amber of the Baltic found its way across the Alps to add a new element to Italian decoration. It was not till the Roman period, however, that the great lines of traffic were distinctly laid; Rome was the first European city whose necessities and desires formed as it were a great center of combustion requiring a continual current from all directions to feed the ever-brightening flame. Since the tenth century, when the northern nations had finally settled in their present seats, the commercial activity of the continent has increased from generation to generation, and in none has it made a greater advance than in the present. Europe has now a hundred homes; and the mightiest of them is to the Rome that then was, as the world of the nineteenth century is to the "world" of the first. Along with increased necessities and more varied desires have been developed greater possibilities of supply and satisfaction; and the commerce of Europe has become the commerce of the globe.

Europe finds greater difficulty in satisfying its demands for animal food. The average consumption per head of population is rising in all the principal countries; and though the modern stock-raiser can produce a greater quantity of flesh per ox or sheep, it is in several dis-

tricts found more profitable to turn the ground to other uses, and sheep and cattle farming are consequently on the decline. There has thus grown up a great import trade, not only of living animals, but within the last twenty years, of preserved meat, the principal sources being North and South America and Australia.

An ever-growing addition to the food supplies of Europe is made in the form of what are called colonial wares—sugar, tea, coffee, etc. Though the native production of beet sugar amounts on an average to 22,000,000 or 23,000,000 cwt. per annum, that would only furnish about 7 lb. on an average to each inhabitant; while as far back as 1866, the average demand was more than 11 lb. per head, and in Britain had reached about 42 lb. The consumption, moreover, has since then increased enormously—Great Britain having advanced to 62 lb. per head, France from 13 lb. to 15 lb., and Germany from 10 lb. to 15 lb. Almost the same might be said of tea, in the consumption of which Britain again stands first, requiring about 4 lb. a head per annum; and of coffee, of which Belgium requires the greatest average supply, or about 9 lb. a head. And to all this must be added the multitudinous articles of consumption from far and near that give such a cosmopolitan air even to an ordinary grocer's shop. For that most universal of all clothing materials, cotton, Europe is almost entirely indebted to other parts of the world; and though it grows a large quantity of wool and no inconsiderable amount of silk, its demand for both far exceeds its domestic supply. So much, however, of what it imports is again exported in the form of manufactured goods, that it is almost impossible to obtain a correct estimate of its true consumption.

If it were not for the enormous development which has been attained by its manufacturing industries, Europe would have no means of paying for what the other continents can afford to send; it has comparatively few raw materials which it can give in exchange, and so it pays for them with its labor and its skill. The countries which rank as emphatically industrial are Great Britain, France, Saxony, Switzerland, Belgium, Württemberg, Prussia, and Alsace-Lorraine. In the manufacture of iron Britain stands at the head of the list, especially for steel, wire, rails, and cast-iron. In the first department its principal rivals are Germany, France, Austria-Hungary, Sweden, and Belgium; in the second, Germany, France, Sweden, and Belgium are also exporters, and Austria-Hungary and Italy manufacture for their own markets; and in the third the state of matters is much the same, with the exception that several other countries are also producers in a small way.

If statistics are unsatisfactory in regard to the condition of primary schools, they are still more unsatisfactory as regards the institutions for the training and education of the primary teacher. Till some approximation be made between the systems of the several countries, it conveys almost no information to say that in Prussia there are 107 and in Russia forty-five, in Switzerland thirty-two and in Portugal six. And still more impossible is it to institute a comparison with respect to the secondary schools and the various institutions devoted to instruction in special departments of art or science. In all the more advanced countries they are increasing in number and in the specialization of their work.

In Germany there are twenty-one universities, including the academy of Münster, with about 1,983 professors and teachers, and a total attendance of 19,000 students. The best known are Berlin, Leipzig, Göttingen, Halle, Tübingen, Bonn, Heidelberg, Jena, and Erlangen. In Austria-Hungary there are ten, with 1,018

professors, and upward of 12,000 students. Italy numbers one more than Germany, with 1,093 professors, and not far from 10,000 students. Russia has nine, including the Finland university of Helsingfors, and the practically German university of Dorpat. The total teaching staff numbers upward of 600, and the students more than 7,000. The four Scandinavian universities of Upsala, Lund, Christiania, and Copenhagen, count 280 professors and 2,700 students. There are four in Holland, inclusive of the Amsterdam Academy, and four in Belgium, the number of professors being respectively 149 and 229, and that of students 2,056 and 2,272. Since the addition of Geneva, Switzerland has the like number, with a teaching staff of 250 to 300, and an attendance of upward of 1,300. Spain boasts of ten universities with 400 professors, and, if her statistics are correct, has more than 15,000 students. Portugal, in its one famous institute at Coimbra, has about 1,000 students, many of whom are from Brazil and the colonies.

A university was founded at Athens in 1837, another at Belgrade in 1838, and a third and fourth at Bucharest and Jassy in 1864. The professors number in all 128, and the students upward of 2,000. In France the organization of the higher education is peculiar; Bordeaux and Lyons are the only two cities besides Paris which have all the five faculties of theology, law, medicine, science, and literature, and it is only in Paris that they are incorporated into a "university." In sixteen other towns there exist one or more of the separate faculties. The professors in France exceed 420, with 14,500 students. The Catholics have free "universities" at Angers, Lyons, and Paris. Making allowance for defective statistics, it may be said that continental Europe has about 7,000 persons engaged in university teaching, and that the students number from 88,000 to 90,000. In Britain the universities differ greatly from each other in constitution and arrangement. Oxford and Cambridge have together about eighty professors and over 5,000 under-graduates. London University, which is merely an examining board, had 17,312 candidates for matriculation in 1877. Durham numbers five professors and 109 students. In the four Scotch universities there are 102 professors and about 5,000 students. The Queen's University, Ireland, has fifty-four professors and 745 students, and the Dublin University thirty-nine professors and 1,200 students.

Europe, and especially Northern and Germanic Europe, has long been distinguished from eastern and southern countries by the greater social and educational equality existing between the sexes; but in this, as in so much else there is still abundant room for improvement. A powerful movement has set in toward a fuller recognition of the rights of woman; and the right to instruction is recognized as one of the most fundamental. A greater assimilation is in most of the more civilized countries being effected between the education given to boys and girls; and a powerful party, with powerful arguments, support the thesis that equal opportunities should also be afforded to young men and to young women. In Prussia the general movement is represented by the Victoria or Lette Union at Berlin, and the Otto Petter Union at Leipzig, both of which have founded institutions for the higher education of women. The Jews of Frankfort-on-the-Maine have established two important schools—the *Philanthropinum* and the *Münsterschule*; and the city of Karlsruhe has had a superior school for girls since 1826. The University of Zürich has set the example of the free admittance of women; the London University opened its gates to them in 1877; and the older universities of England and Scotland have at least sanctioned extramural lectureships and condescended to

examine if not to teach them. A women's college has been opened at St. Petersburg by Catherine Dikhova under imperial patronage; Hungary has a similar institution, and so the innovation is becoming familiar, and within a generation or two the condition of female education at the beginning of this century bids fair to appear a semi-barbarian state of things hardly credible at so recent a date.

To recapitulate, European education is being more widely diffused, is passing from the control of the clergy or the private citizen into the hands of the state, is becoming more secular and less sectarian, and in its higher departments shows a growing catholicity toward the more modern aspects of thought and life.

Europe is preëminently the country of monotheism, which forms the central doctrine, not only of its dominant religion, Christianity, but also of the minor rivals, Judaism and Mahometanism. To none of these three religions has it given birth; and, what is more remarkable, its peculiarly Aryan population have adopted their religion from a Semitic people. The various nations of Europe were still polytheistic when they first entered within the historic horizon; and this polytheism has left more numerous traces of its influence than superficial observers might imagine. Not only have the gods of the Greek and Roman pantheons and their ruder rivals of the north obtained an immortality in the literature and art of all the cultured nations of Europe, but amid the manifold traditions and half-unconscious beliefs of the common people there are fragments of older and baser creeds. Much has still to be done before the amount of such survivals can be estimated with anything like accuracy, but that their number is considerable has been already well established. Nor need it be matter of surprise when we consider how recent the introduction of Christianity into Europe really is, and how, to vast masses of men, it came, not as a conviction of the intellect or a captivation of the heart, but as the infliction of a conqueror or the command of a king; and how, even when it was adopted through the persuasive eloquence of genuine missionaries, it obtained, in many cases, but a divided allegiance, and had to accept and sanctify, as best it might, the rites and symbolism of the religion which it expelled.

Christianity in Europe is broken up into three main divisions—the Roman Catholic Church, the Greek or Eastern Church, and the Protestant or Evangelical Church; and each of these has received more or less numerous modifications and subdivisions under the influence of different political and social environments. Roman Catholicism not only can boast of the greatest number of adherents, but has the greatest claim to unity.

The irreconcilability of two great parties has given rise to the so-called Old Catholics in Germany and Switzerland, who, in the latter country at least, seem likely to break up into two distinct sections. There are two religious communities in Europe which occupy a special relation to the Roman Catholic Church, the United Greeks and the United Armenians, otherwise known as Catholics of the Greek rite and Catholics of the Armenian rite. They both acknowledge the supremacy of the pope, but they are permitted to retain many peculiarities of organization and ritual.

The Protestant churches of Western Europe, which have so marvelously exemplified what naturalists call propagation by fission, may be doctrinally divided into two great groups—the "Lutheran," which maintain the platform of the great Reformer; and the "Reformed," which have advanced further in their divergence from Roman Catholicism.

Mahometanism or Islam has comparatively few adherents in Europe, and has moreover ceased to be aggres-

sive. If it still occupies in Constantinople one of the noblest of Christian churches, it is more than six hundred years since it surrendered in Cordova, one of the noblest of its mosques. Its adherents are mainly Turks, Tartars, and Slavonians; and outside of Turkey they are nowhere very numerous except in southern Russia. Judaism, which at one time had no small proselytizing energy, has for a long period in Europe been nothing but the religion of the people of Jewish descent. It is divided into two great organizations, the so-called orthodox party representing traditionalism, and the reformed party representing freedom of thought.

The political history of Europe begins with the Greeks; but while they contributed more extensively than any people have done since to the theory of government, they have left practically no trace of their political organization in the present association of states. From first to last, in spite of religious and political confederations, and of the unifying influence of the Macedonian hegemony, they retained what in modern phraseology would be called their particularism—each city or state working out its own political development, and testing the value of the various forms of political life for itself. The Greeks were not a conquering people; they felt nothing of the land-hunger of modern nations; and even the great conquests to which they were led by the Asiatic genius of Alexander the Great did not present themselves as acquisitions of territory. They were great founders of cities, and their colonies were distributed along the coasts of Europe from Spain in the west to the Black Sea in the east; but if all the ground that they thus occupied were added together, it would form a comparatively small country. The city, wherever it was, continued an integral part of Hellas, but Hellas was rather the name of a people and a civilization than of a country or state. The history of Rome is almost from its beginning to its close a history of conquest; the limits of its territorial advance were no sooner fixed than the period of decadence set in. Where the Greeks had planted a city the Romans subjugated a region. And thus it is that to the present day the lines of Roman organization are as distinctly traceable on the political map as the lines of Roman roadway in local topographies.

As the Greeks had been the great defenders of Europe from the encroachments of Persian ambition, so the Romans repulsed the Semitic power of the Carthaginians; and as the defense against the Persians was the great determining factor in later Greek development, so the repulse of the Carthaginians was the prime factor in the later Roman development. The Punic wars led to the conquest of Sicily and Spain; and the conquest of these gave at least a new emphasis to what was already perhaps a national tendency.

Instead of tracing the gradual disintegration of the Western empire, with its monotonous detail of invasions, concessions, repulses, etc., it will be well to pass down to the sixth century, and see what has been effected in the interval. We now find the German race almost everywhere in the ascendant. England is in the hands of the English; the kingdom of the Franks extends from Brittany to Thuringia; the West Goths are dominant in the greater part of Spain and nearly all the country to the south of the Loire; the Suevi are in possession of the remainder of Spain; the Burgundians occupy a compact territory, which includes, besides the basin of the Rhone and Saone, parts of the contiguous basins of the Rhine, the Seine, and the Loire; and the East Goths, under the sanction of the emperor of the East, hold sway in the rest of western Europe, from Provence to the Danube and from the Alps to the Sicilian Strait. Outside of the old frontier the Gepidæ (also

German) have established a kingdom in the country to the north of the Danube; on the northwest they are continuous with the Lombards; the Thuringians are established to the west of the Böhmerwald; the Saxons lie between the Meuse and the Oder; the Danes are in possession of Denmark, and the other Scandinavian peoples hold the country from which they derive their name. It would seem as if Europe were in a fair way to become a German confederation, or, it might be, a German empire. But all over the old Latin area the Germans are ceasing to be Germans; and beyond that area, both in Europe and Asia, there are other peoples destined to play a part in the settlement of the West. The Bulgarians, a Mongolian tribe, have reached the country between the Dnieper and the mouth of the Danube; the Czechs or Bohemians, already occupy the country which now bears their name; the Croats are to the north of the Lombards; and other Slavonic tribes have pushed south to the coast of the Adriatic.

If we again pass down for about two centuries, the whole scene is changed. The West Goths and East Goths have almost disappeared—the former only living on in the little kingdom of Asturia in the north of Spain; to the south of the Ebro and the Douro the country is in the hands of Arabs, or Moors, who first crossed the Strait of Gibraltar in 711; the king of the Franks is that Charles the Great, or Charlemagne, who is the mightiest monarch Europe has seen since Constantine, and he has not only extended his kingdom on all sides, but he has been chosen emperor of the West, and his authority is acknowledged from the Ebro to the Elbe, and from the North Sea to the Tiber. A new political power has arisen in the pope, or bishop of Rome, whose spiritual supremacy is beginning to be widely recognized. The Eastern or Byzantine empire is more and more exposed to the intrusion of Slavonians; they have under the name of Servians established a considerable kingdom between the Adriatic and the middle Danube, and, mingled with other races like the Bulgarians and the Avars, they occupy a large region to the north of the Danube. In the country to the north of the Black Sea, as far east as the Volga, has grown up a great kingdom called the kingdom of the Khazars, with its capital at Balangiar or Astrakhan; the people is mainly of Ugrian stock, but it has accepted the Jewish religion, and, allowing complete religious toleration, is mingled with representatives of many nationalities; politically it continues important for centuries as a bulwark against the advance of the Slavonic tribes from the north. Of all these states from the Atlantic to the Volga the one that showed most powerfully at the time, and which has lived most prominently in historic record, is undoubtedly the empire of Charles the Great; but of all it was the first to perish: even the nucleus of his kingdom was divided into two—that of the West Franks and that of the East Franks.

By the end of the tenth century the map again presents great modifications. The Mahometans are still in possession of a great part of Spain, and the northern region has been broken up into several independent states. The western Franks now form the kingdom of France with its capital at Paris, and since 987 have been ruled by the dynasty of Capet, which will continue to modern times. Germany has recently become the representative of the Roman empire through the coronation of Otto the Great of Saxony; and Otto III. is forming plans for the increase of the imperial power.

Among the peoples to the east the Russians are already the most powerful; and the great empire of the Khazars has disappeared.

During the next five centuries Europe was full of

hurry to and fro, of petty strivings and plunderings, of great wars and invasions, of crusades and conquests. At one time it appeared as if the Scandinavian peoples were to take possession of England, and at another as if the English were to become masters of France; the French attempted the annexation of Italy; the most powerful of the Italian commonwealths extended its authority over the islands and mainland of Greece; all Europe sent forth its armies for the recovery of the sacred sepulcher; and all Europe was in alarm at the advance of the Ottoman power. Amidst all the confusion and conflict, the modern nations were slowly taking shape under the influence of a rapidly developing feudalism, and by the time we reach the sixteenth century we can speak of France and Germany, of Spain and Portugal, of Poland, Russia, and Turkey, with something of the same meaning in the words as they possessed till the Great Revolution.

In the second decade of the sixteenth century the house of Hapsburg, in the person of Charles V., attained an unprecedented preponderance. Through the action of the laws of inheritance he acquired the Netherlands, the Spanish monarchy with the kingdom of Naples, and the Austrian states of his paternal grandfather; and in 1519 he was elected to the imperial throne. On his abdication he left the German states to his brother Ferdinand, and the rest of his possessions to his son Philip. Between the various countries thus absurdly united with the Spanish crown there was no kind of cohesion, and even in a period of repose the association could hardly have been expected to last. The sixteenth century was anything but a period of repose. The extent of the new monarchy raised the rivalry of England and France; the Turkish power was dangerously aggressive in the east; and religious discord added a new and potent element of disintegration. War followed war in rapid succession; and many of the most flourishing parts of the continent were laid waste with a desolation which centuries of peace but partially effaced.

It was not till 1648, that the treaty of Westphalia gave the greater part of the continent another period of repose. The contest of which it was the immediate termination left Sweden the most powerful of the Scandinavian states, with important acquisitions from Denmark and Norway, from Germany, Russia, and Poland. The Protestant Netherlands and Switzerland were now formally recognized as independent. In Germany the house of Hapsburg was no longer in a position of undisputed supremacy; the houses of Hohenzollern, Saxony, and Wittelsbach had all gained in importance; and, instead of a powerful kingdom, there was nothing but a "lax confederation of states." The authority of Spain was still acknowledged in Naples and Sicily, in Milan and Sardinia, as well as in the Catholic portion of the Netherlands. Venice was the principal native power in the north of Italy, and a large part of the central region was in the hands of the church. France had increased her territory by the acquisition of Alsace, and was the most formidable military state in the continent. The three kingdoms of the English crown had for some time been united under a common dynasty. Russia was recovering her position; Poland was already beginning to decline; the Turkish power was losing ground before the Germans and Hungarians, and, as a natural consequence, the Hungarian kingdom was gathering strength.

The rest of the seventeenth century was mainly remarkable for the series of wars with which the name of Louis XIV. of France is more immediately associated. They produced in the long run comparatively small alterations in the partitioning of territory, as the treaty of Ryswick was in the main an instrument of

restoration. Of much greater effect was the death of Charles II. of Spain in 1700, followed as it was by the war of the Spanish succession, in which all the principal states were more or less embroiled. At the close of the contest the Bourbons of France got possession of Spain, Sicily, and Parma; the Austrian branch of the house of Hapsburg obtained the Spanish Netherlands, Naples, Sicily, and Milan; the Prussian kingdom of the Hohenzollerns was formally recognized, and its territory increased; the Duke of Savoy became king of Sardinia; and England secured the occupation of Gibraltar and Minorca. The principal effect of the wonderful campaigns of Charles XII. of Sweden was to leave his country in a condition so exhausted that, at the peace of 1720-1, it had to give up a great part of what it had acquired during the seventeenth century. A totally different result attended the equally daring, but more politic enterprises of Frederick the Great, who greatly increased his territory and secured for his kingdom a brilliant future in Europe. About the same time, under Peter the Great, Russia was making conquests both in south and north, and was preparing to take her place side by side with the western powers.

In the latter half of the eighteenth century, or, more precisely, about the year 1785, the political map presented the following divisions. The German empire under Joseph II. extended over an area of about 255,120 square miles, had a population of upward of 26,000,000, and consisted of no fewer than 289 states, of which sixty-one were free cities. The portion of the Austrian possessions which was not included in the empire had an area of 152,000 square miles, and a population of 9,250,000; and the corresponding portion of Prussia had an area of 29,764 square miles, and a population of 1,500,000. To France, at that time under Louis XVI., belonged no less than 201,970 square miles, and a population of 26,000,000. The inhabitants of Great Britain and Ireland numbered no more than 12,000,000; and Spain, with her area of 195,600 square miles, had only about 10,500,000. Italy was broken up among eleven states, and her total population was estimated at 16,250,000. The kingdom of the Two Sicilies included the island of Sicily and all the southern portion of the peninsula as far north as Terracina in the west and Ascoli in the east; to the north lay the States of the Church, extending in the east to the mouth of the Po, and in the west to the borders of Tuscany.

The republic of the united Netherlands had 7,290 square miles of territory, and 2,250,000 of a population. Norway was politically united with Denmark; and the king of Denmark, Christian VII., consequently held sway over an area of 165,830 square miles, and a population of 2,250,000. The Swedish territory was about 233,860 square miles, but the population was only 3,000,000. Switzerland occupied 14,880, with 1,750,000 inhabitants. The republic of Poland, in spite of the partition of 1772, by which it lost 6,600 square miles, still possessed a territory of upward of 223,000 square miles, and a population of about 14,000,000. Russia held 1,593,300 square miles, and Turkey about 245,000; and their respective populations amounted to 25,000,000 and 15,000,000.

In 1789 the great French Revolution had fairly commenced, and for the next quarter of a century the history of Europe is little more than a history of France and her friends, and France and her foes. Never since the invasions of the Germanic nations had there been such a complete overturning of all existing political arrangements as was effected by the daring despotism of Napoleon. In 1812 the French empire included not only France, Belgium, Holland, and Luxembourg, but also the whole country to the left of the Rhine, the

mainland of Sardinia, part of Modena, Tuscany, and Rome, Geneva, Neuchâtel, and Valais—a total area of no less than 339,000 square miles, with an aggregate population of 42,366,000. The thirty-five states of the confederation of the Rhine, including the kingdoms of Westphalia, Saxony, Bavaria, Würtemberg, the grand duchies of Frankfurt, Berg, Baden, Hesse, and Würzburg, were under the protection of Napoleon; a similar position was held by the kingdoms of Italy and Naples, by Illyria and the grand duchy of Warsaw; and French influence was paramount in Switzerland, Prussia, Austria, and Denmark. England and Russia were the only truly independent states of real political importance; Spain and Portugal were fighting for their existence; and Sweden on the one hand, and Turkey on the other, were practically outside of Europe.

At the great monarchical congress of Vienna, an attempt was made to restore nearly everything that the Revolution had undone. Austria recovered East Galicia from Russia, and Tyrol and Salzburg from Bavaria; and in compensation for Belgium, etc., she obtained the Lombardo-Venetian kingdom of Italy, as well as Dalmatia and Parma. A kingdom of the Netherlands was constructed out of Belgium, Holland, and the German duchy of Luxembourg. The kingdom of Sardinia was restored to Victor Emmanuel and strengthened by the addition of Genoa; and Modena and Tuscany were assigned, the one to Duke Francis IV. and the other to Ferdinand, the brother of the Austrian emperor. Naples and Sicily, as the kingdom of the Two Sicilies, were given back to the former king Ferdinand; Spain and Portugal to Ferdinand VII. and the house of Braganza respectively. Russia incorporated Finland, Bessarabia, part of Moldavia, etc.; the kingdom of Poland was governed under Russian suzerainty by a vice-king, with a free constitution; Cracow was declared a free state under the protection of Austria, Russia, and Prussia. Switzerland was allowed to retain its federative system, and its neutrality was guaranteed. Prussia not only got what she had lost by the peace of Tilsit, but received a part of Poland, including Dantzic and Posen, the half of the kingdom of Saxony, and a flourishing territory on the middle and lower Rhine; Bavaria obtained the Palatinate of the Rhine; and Hanover, augmented by East Frisia, was made a kingdom. The restoration of a German empire being rendered impracticable by the particularist tendencies of several of the larger states, a German confederation, or *Deutsches Bund*, was substituted, under the presidency of Francis of Austria and his successors. The diet of this confederation had its seat at Frankfurt-on-the-Maine, and consisted of the representatives of no fewer than thirty-eight sovereign states, which besides the German dominion of Austria, included the five kingdoms of Prussia, Bavaria, Hanover, Saxony, and Würtemberg, the electoral principality of Hesse-Cassel, seven grand-duchies, nine duchies, ten principalities, the landgrave of Hesse-Homburg, and the four free cities, Frankfurt, Hamburg, Bremen, and Lübeck. England obtained possession of Malta in the Mediterranean and of Heligoland off the Danish coast; and the Ionian islands were placed under an English protectorate.

And now a new glacial period of absolutism threatened to invade Europe. Alexander of Russia, Frederick William of Prussia, and Francis of Austria united in a Holy Alliance, which based, perhaps honestly enough, on the noblest humanitarian professions, proved practically an association for the strict preservation of the royal prerogative against the encroachments of the people. The promise of constitutional government made by many of the sovereigns to their subjects was forgotten or ignored, and even when a constitution was

granted it was not infrequently another form of despotic machinery. The Bourbons bourbonized in France and Spain, and the policy of Metternich was dominant in Austria and Italy. The pope did his best to restore the supremacy of the clergy by concordats with the several states of Catholic Europe; the Jesuits were re-established, and soon recovered a large part of their influence; and even the Knights of St. John were called back to a futile existence.

But the principles of the Revolution were not dead; they only slumbered, and before long they gave signs of awaking. Neither the political distribution of the European territory established by the Congress of Vienna, nor the political doctrines which mainly conditioned the distribution, were destined to endure. The July revolution in France (1830), which drove out Charles X. and introduced the constitutional government of Louis Philippe, was a signal of change. In the same year the independence of Greece was permanently secured, after the treaty of Adrianople had closed the Russo-Turkish war; and the separation of Belgium from Holland was recognized by the five great powers in the London conference. A great struggle for national existence burst out in Poland—only, however, to end in its complete incorporation with Russia. By 1848 constitutionalism had made no small progress; Russia, Austria, and Prussia were, indeed, as absolutist as ever, but, besides England, France, and Switzerland, Spain and Portugal, Holland and Belgium, Norway and Sweden, Denmark, Greece, and the greater number of the minor German states had all attained a certain amount of political freedom. In Germany, Duke Charles Augustus of Saxe-Weimar had given his subjects a constitution as early as 1816; Nassau, Bavaria, and Baden followed the example in 1818; and after violent disturbances the people of Wurtemberg secured the same privileges. If the July-revolution of 1830 had been potent, much more potent was the more radical revolution of February, 1848. The storm swept over the continent, and when it had ceased the political aspect of Europe had changed. By the dreadful "Days of March," the King of Prussia, Frederick William IV., was forced to become a "constitutional king," and a national assembly was soon after instituted. In Austria, Metternich had to flee for his life, and Ferdinand was constrained to submit to the demands of the Liberals. In Italy, Rome expelled the pope and declared itself a republic; Sicily expelled the Bourbons, and chose the Duke of Genoa as their king; and the northern states rose against Austrian domination. A reaction, however, soon again set in. France passed from a republican to a strongly monarchical government; the Prussian king canceled his constitution and issued another in its stead; Austria was successful in putting down the Hungarian and Bohemian patriots and inflicting a terrible revenge; and Italy saw the defeat of the army of Charles Albert, and had to submit again to Austrian despotism in Lombardy, papal despotism in Rome, and Bourbon despotism in Sicily and Naples. The hope of a real German unity based on constitutional principles, which had been raised by the great Frankfort parliament, died away; Austria was still in the ascendant, and under her countenance and support all liberal movements were violently suppressed in the south German states. The first great disturbance of the sullen and sultry peace which settled down over Europe was occasioned by the claim of Russia to the protectorate of the Greek Christians in the Turkish empire, and her invasion of the Danubian principalities. England and France determined to maintain the integrity of Turkey, and the Crimean war was the result. By the treaty of Paris, which closed the contest (March, 1856), Russia

ceded a small piece of territory to the north of the Danube, the navigation of the river was declared free, Moldavia and Wallachia were increased by the addition of the Russian surrender, and placed along with Servia under the protection of the contracting powers, and the neutrality of the Black Sea was established. The real power of Turkey was hardly increased; and in 1859 she had to utter useless protests against the principalities of Wallachia and Moldavia, which united into one under the name of Roumania, and chose Alexander Cusa, a Moldavian nobleman, as their chief. The Italian kingdom of Sardinia, which had joined in the Crimean war as an ally of England and France, was soon to play a much more brilliant part in Europe. With the powerful assistance of France it drove Austria out of Lombardy, and practically secured the leadership among the states of Italy. In 1860 the first Italian parliament contained representatives, not only of Sardinia and Lombardy, but also of Tuscany, Modena, Parma and the Roman legations, all these states having voted by general suffrage to cast in their lot with Sardinia. The same year saw the marvelous campaigns of Garibaldi; and on March 17, 1861, Victor Emmanuel was recognized as king of Italy by all the Italian states except Austrian Venetia and the city of Rome.

In 1864 another important alteration of political boundaries was effected in the north. The provinces of Schleswig-Holstein, occupied by a partly Danish and partly German population, were conquered by the united forces of the German confederation. Before long it was evident that Prussia meant to appropriate them to herself as of great service to the development of her marine. By the Gastein convention of 1865 it was arranged that the government of Schleswig should fall to Prussia and that of Holstein to Austria, while Lauenburg was yielded to Prussia for 2,500,000 Danish rix-dollars. This treaty, however, proved only a very temporary settlement—the real question at issue being whether Prussia or Austria was to be the dominant power in Germany. The diet, which, according to the treaty of Vienna, ought to have been arbiter between them, was too weak to give effect to any decision; it sided with Austria, and mobilized its army by the decree of July 14th. By July 3, 1866, the fate of Germany was decided by the battle of Königgrätz or Sadowa, and on August 23d the treaty of Prague was signed. The Austrians ceded the Venetian territory to the Italians (who had naturally seized the opportunity of the war), gave up their claim to Schleswig-Holstein, and promised to recognize the German confederation and any territorial changes effected within its limits. In 1866-67 the confederation was constituted, under the direction of Prussia, to include all the German states to the north of the Maine; they were to have one common federal legislation and a federal army, while in everything Prussia was to have the preëminence. The duchy of Luxembourg in the same years threatened to involve Europe in a new war, as Prussia refused to permit its transfer by the king of Holland to the French emperor; but peace was secured by a conference of the great powers in London (May, 1867), who guaranteed the neutrality of the territory and secured the dismantling of its fortresses.

Another step in the unification of Germany was taken in 1868 by the reconstruction of the Zollverein or customs union. Meanwhile Austria had been turning her attention to her domestic difficulties, and had settled the most important by the recognition of the autonomy of Hungary, which was henceforth to be associated with Austria proper on equal terms. In June, 1867, Francis Joseph and his consort were formally crowned at Pesth as king and queen of Hungary. The year 1870 saw the

completion of Italian unity by the occupation and annexation of the City of Rome, and, what was of still greater consequence to Europe at large, the rise of a dispute between France and Prussia about the succession to the throne of Spain. The matter was of little real moment to either, but the French Government was eager for the fray, and Prussia was not slow to take up the gage. If the strength of the two combatants be considered, the terrible conflict was soon over. The German troops, who had crossed the frontier in August, 1870, entered Paris in March, 1871; the preliminary peace had been signed at Versailles in February; and the final peace was concluded May 10th. Prussia's position in Germany and Europe was established, and her king had been recognized as emperor of the German Confederation on June 18th, in the palace of Versailles. Europe again enjoyed peace for a few years; but in 1877, Russia declared war against Turkey, ostensibly as protector of the Christian populations who were suffering from the anarchy of her government. In Europe and Armenia the conflict continued with growing success on the part of the Russians till the preliminary peace of San Stefano. The alterations demanded by Russia were of the most sweeping kind, and would practically have removed Turkey from the rank of a European power, as the territory to be left under her control was both of small extent and discontinuous. The conclusion of the treaty on such conditions was strongly opposed by the British Government, and for a time it almost appeared as if Europe were to be involved in a far more terrible war than that which had come to a close. After much political finessing it was at length decided that the matter in dispute should be submitted to an international congress, and the plenipotentiaries of the various powers accordingly met at Berlin, on Thursday, June 13, 1878.

Such in the most meager outline are the principal changes in the political distribution of the territory of Europe. A clearer idea of the rise of the several powers of the present time may be obtained from the following equally rapid survey.

Great Britain began in the little Saxon kingdom of Wessex, which, according to the usual account, dates from Cerdic's settlement in 519 A.D., and by 880 had extended its authority as far north as the Forth and Clyde. The remoter portions of this territory afterward gravitated now to England and now to Scotland, till at last the boundaries between the two kingdoms became what they still remain. Wales was subjugated by Edward I. in 1282; and the conquest of Ireland, begun in 1169 under Henry II., was completed by 1610. The English and Scottish crowns were united on the accession of James of Scotland to the English throne in 1603, and the two countries became politically one by the Act of Union in 1707. The representation of Ireland in the English parliament dates only from 1801.

France practically had its commencement when Hugh Capet united the duchy of Francia with the minor territories still left in the hands of the petty Carolingian kings, and established the capital at Paris. Its subsequent growth was very gradual, and the successive additions were obtained partly by conquest, partly by purchase, and partly by matrimonial alliances. Philip I. bought the duchy of Berri; Philip Augustus secured possession of Anjou, Maine, Touraine, and Poitou, and of Normandy, Vermandois, Alençon, Auvergne, and Evreux; St. Louis obliged the count of Toulouse not only to give up part of his territory, but also to recognize the revisionary rights of the crown; Philip IV. added the countship of Lyonnais, and John incorporated Champagne and Brie. With the accession of the house of Valois the duchy of that name naturally became part

of the royal domain, and shortly afterward Dauphiné was obtained from the childless Hubert II. The long English wars interrupted the advance and dismembered the kingdom, and it was not till 1450 that the king of France was again in possession of his full inheritance. In 1477 the great duchy of Burgundy was incorporated with the crown; Provence, the Boulonnais, and Picardy were all acquired in 1481; and in 1488 the death of the last Duke of Brittany paved the way for the incorporation of his duchy. Henry IV. brought part of Navarre, Béarn, and Foix; Louis XIII. united Artois with the crown; and Louis XIV. secured not only the greater part of Alsace, but also French Flanders, and Franche Comté. Corsica, which had been conquered from Genoa in 1768, and Avignon and the Venaissin, which had been held by the popes, were incorporated in 1791.

Austria was originally a *mark* established by Charles the Great for the defense of Bavaria against the Avars. It was made a duchy by Frederick Barbarossa in 1156, and in 1192 was increased by the addition of Styria. The acquisition of Carinthia, Tyrol, and Trieste took place in the fourteenth century; and in 1453 the duchy was made an archduchy by the Emperor Frederick. Dalmatia was gained by the treaty of Cambray in 1508; Hungary, Bohemia, and Silesia, by the marriage of the Archduke Ferdinand, the brother of Charles V., with the Hungarian princess in 1526; Galicia and Lodomeria at the partition of Poland in 1772; and Bukovina from Turkey in 1778.

The present German empire dates, as has been seen, only from 1872. Prussia, conquered from the pagan Slavonians by the Teutonic knights of the thirteenth century, was, in 1525, granted by the Polish King Sigismund I. as an hereditary duchy to Albert of Brandenburg, and in 1611, became independent of the Polish Crown. In 1701, Duke Frederick was permitted by the emperor to assume the title of King of Prussia; and under his grandson Frederick the Great, the territory of the new kingdom was increased by Silesia and large parts of Poland. In 1866, Hanover, Hesse-Cassel, Nassau, and Frankfurt were annexed.

The battle of Morgarten in 1315 secured the independence of the Forest Cantons of Switzerland; and in 1352, the first real confederation was formed by Schwyz, Uri, Unterwalden, Lucerne, Zurich, Glarus, Zug, and Bern. Aargau or Argovia and Thurgau or Thurgovia were annexed in 1415, and Ticino or Tessin in 1418. Soleure or Solothurn and Freiburg or Fribourg joined the confederacy in 1481, Basel and Schaffhausen in 1501, and Appenzell in 1513; St. Gall, Geneva, Neuchâtel or Neuenburg, Valais or Wallis, and the Grisons or Graubünden shortly afterward became associated states; and in 1536, Vaud or Waadt was conquered from the dukes of Savoy.

The kingdom of Spain was formed by the union of Castile and Aragon in 1479. Castile had become a kingdom in 1033, and had successively incorporated Toledo, Leon, and Galicia; and Aragon, which represented the older kingdom of Sobrarbe, had gradually got possession of Catalonia and the countship of Barcelona, Valencia, Majorca, Minorca, and Ivica. The conquest of Granada in 1492, and of Navarre in 1512, completed the territorial extension. Portugal, which has more than once been incorporated with Spain, was erected into a kingdom in 1139.

The beginnings of the Russian empire are usually traced to a body of Scandinavian adventurers in the ninth century, but the real commencement of the present monarchy is the grand duchy of Moscow, which, in the fourteenth century, under Ivan Kalita, began to be paramount among the various Russian principalities.

During the next 200 years these were gradually subdued, the last and greatest of all, Novgorod, being incorporated in 1478. In 1654, the chief of the Zaporogian Cossacks recognized the Russian supremacy, and Smolensk and part of White Russia were annexed. In 1721, Livonia, Esthonia, Ingermanland, and part of Finland were ceded by Sweden; in 1742, another part of Finland was added; in 1772, the northern and eastern portions of White Russia, and in 1774, Azoff, Kertch, Yenikale, and Kinburn. The whole of the Crimea was incorporated in 1783, and ten years after, Volhynia, Podolia, and the government of Minsk. The year 1795 saw the annexation of Lithuania, Courland, and Samogitia, and the first decade of the nineteenth century the successive incorporation of Georgia, Mingrelia, and the remainder of Finland. Imeritia was added in 1810, Bessarabia in 1812, and the duchy of Warsaw in 1815; and the conquest of the Caucasian region was completed in 1859-1864.

The Scandinavian kingdoms date from the eighth and ninth centuries; and their territory has been at various periods very differently distributed among themselves. An amalgamation was effected by the union of Calmar in 1397, and lasted till 1524. The present union of Norway and Sweden dates from the treaty of Kiel in 1814.

We have seen that nationalism is powerfully at work; the tendency to give practical application in the political domain to the principle familiarly expressed in the phrase, birds of a feather flock together. The so-called nations of Europe are still in painful process of formation—some in one stage and some in another, but all without exception very imperfectly organized. As a mere vocable the word nation is old enough, but the thought which it now vaguely expresses is a thought that men are but beginning to think. Europe has had its tribes and its kingdoms, its village communities, its cities, its Achæan leagues, its Hanseatic confederations, its republics, its empires; it is only developing its nations. Hence in part the difficulty of attaining a satisfactory definition of nationality; and hence the endless collisions and confusions that arise in the practical application of the principle.

As a natural complement of nationalism we have internationalism, which in certain aspects may be regarded as a stage in the progress to cosmopolitanism. Just in proportion as the various nations develop and recognize their national individuality they become conscious of their true relations to each other, and find the necessity of regulating their mutual intercourse and common activity; isolation is impossible. Reciprocity must increase with the capacities and desires of each; there are many things which can be attained only by concerted action or division of labor. The tendency of internationalism is displayed in the purely political domain by the growth of international law, and the gradual endeavors after a system by which international disputes may be settled by arbitration and discussion rather than by armaments and devastation. That it will end before long in something like a confederation of European states the optimist believes and the philanthropist hopes.

A third tendency fostered by the same conditions as internationalism is what is known as religious and political toleration. Thanks, indeed, to the influence of the French Revolution, rapid progress has been made during the present century, and the severer forms of persecution have fallen decidedly out of fashion. The Jews are the most notable monument of the change. Their history for centuries was full of blood and tears; they were despised and rejected; their very name was a byword and reproach. The nineteenth century has seen them gradually admitted to all the rights of citizens in the

most flourishing countries of the continent, guiding the destinies of nations and mingling their blood with the proudest nobilities. In the more backward and conservative countries they still labor under many disadvantages; from Norway and Russia Proper they are excluded by law, and in Portugal and Spain they are emphatically aliens. In Prussia and throughout the German empire there has been a recrudescence of animosity between the confessions; but it is to be observed that the contest is rather between the state and a political party than between the Catholics as Catholics and the Protestants as Protestants.

EURYDICE. See ORPHEUS.

EURYMEDON, an Athenian general, who, in the fifth year of the Peloponnesian war, 428 B.C., was sent by the Athenians, with a fleet of sixty vessels, to intercept the Peloponnesian fleet which was sailing to attack Corcyra, at that time rendered defenseless through internal feuds. In 414 Eurymedon, sent with Demosthenes to reinforce the Athenians at the siege of Syracuse, was defeated and slain in the first of two battles fought before its walls.

EURYSTHEUS. See HERCULES.

EUSEBIUS, of Cæsarea, well known as the father of ecclesiastical history, was born probably in Palestine about the year 265. The date of his birth is, however, uncertain, and varies between 260 and 270. We know little of his youth beyond the fact that he was a diligent student of sacred literature. It was as a student, and probably as holding some inferior office in the church at Cæsarea, that he became connected with Pamphilus who was at the head of a theological school there, and devoted himself to the collection of a church library, especially to the care and defense of the writings of his great master, Origen. In the course of the Diocletian persecution, which broke out in 303, Pamphilus was imprisoned for two years, and finally suffered martyrdom. During the time of his imprisonment (307-9) Eusebius distinguished himself by assiduous devotion to his friend, spent days with him in affectionate intercourse, and is supposed to have actively assisted him in the preparation of an apology for Origen's teaching. After the death of Pamphilus, Eusebius withdrew to Tyre, where he was kindly received by the Bishop Paulinus, and afterward, while the Diocletian persecution still raged, went to Egypt, where he was imprisoned, but soon released. Eusebius labored and became a conspicuous figure in the church till the year of his death, 340. The patriarchate of Antioch was offered to him in 331, but he preferred the less eminent sphere associated with his early studies and friends, and probably more congenial to his literary tastes and pursuits.

EUSEBIUS, of Emesa, a learned ecclesiastic of the Greek Church, was born at Edessa about the beginning of the fourth century. His fame as an astrologer commended him to the notice of the Emperor Constantine, with whom he became a great favorite, and whom he accompanied on many of his expeditions.

EUSEBIUS, of Nicomedia, is the only other of the many early fathers or bishops of the church bearing the name who claims our notice. He was the defender of Arius in a still more avowed manner than his namesake of Cæsarea, and from him the Eusebian or middle party specially derived their name. He was known amongst them by the epithet of Great. He was a contemporary of the bishop of Cæsarea, and united with him in the enjoyment of the friendship and favor of the imperial family. He is said to have been connected by his mother with the Emperor Julian. He was first bishop of Berytus (Beirut), in Phœnicia, but his name is especially identified with the see of Nicomedia, which, from the time

of Diocletian till Constantine established his court at Byzantium, was regarded as the capital of the Eastern Empire. His views appear to have been identical with those of his namesake in placing Christ above all created beings, the only begotten of the Father, but in refusing to recognize Him to be "of the same substance" with the Father, who is alone in essence and absolute being. Eusebius died in 342.

EUSTATHIUS, Sr., Bishop of Berea, was a native of Side, in Pamphylia. By the council of Nice, in which he distinguished himself by his zeal against the Arians, he was promoted in 325 to the patriarchate of Antioch. He died in 359 A.D.

EUSTATHIUS, Archbishop of Thessalonica, was a native of Constantinople, and flourished during the latter half of the twelfth century. He was at first a monk, and afterward teacher of rhetoric in his native city. In 1174 or 1175 he was chosen bishop of Myra, in Lycia, and shortly afterward archbishop of Thessalonica. Such of his works as have descended to our times display a comprehensiveness and variety of erudition that fairly entitle him to the praise of being the most learned man of his day. He is the author of various religious works, chiefly against the prevailing abuses of his time, which almost anticipate, though in a milder form, the denunciations of Luther. The year of Eustathius' death is uncertain, some placing it in 1194, and others a few years later.

EUTERPE, the muse of lyric poetry. See **MUSES**.

EUTROPIUS, a Roman historian, who lived in the latter half of the fourth century.

EUTYCHES, the founder of the sect of the Eutychians, was a presbyter and archimandrite at Constantinople, and first came into notice in 431 A.D. at the council of Ephesus, where, as a zealous adherent of Cyril and the Alexandrine school, he vehemently opposed the doctrine of the Nestorians. They were accused of teaching that the divine nature was not incarnated in, but only attendant on, Jesus, being superadded to his human nature after the latter was completely formed. In opposition to this Eutyches went so far as to affirm that after the union of the two natures, the human and the divine, Christ had only one nature, that of the incarnate Word, and that, therefore, His human body was essentially different from other human bodies.

EUYUK, a Turkish village of Asia Minor. It consists of only about twenty houses, but contains perhaps the most important ruins in Asia Minor. They are the remains of a large building, and consist of colossal blocks of granite containing a great variety of sculptures very little defaced. In form the building resembles an Assyrian palace, and has been conjectured by some to have been erected by the builders of the palaces of Nineveh, adopting in this instance, as they are known to have done in others, Egyptian figures and emblems.

EVAGORAS, King of Salamis, is said to have been descended from a family who claimed Teucer, brother of Ajax, as their progenitor, and who for a long period had been rulers of Salamis until expelled by a Phœnician exile. Conjointly with the Persians and Athenians, he assisted in gaining the battle of Cnidus, 304 B.C., and for this service his statue was placed by the Athenians side by side with that of their General Conon in the Ceramicus. Evagoras was assassinated by a eunuch from motives of private revenge in 384 B.C.

EVAGRIUS, surnamed Scholasticus and Ex-Præfectus, was born at Epiphania in Syria, 536 A.D. From his surname he is known to have been an advocate, and it is supposed that he practiced at Antioch.

EVANDER. In the Roman tradition the story of the Arcadian Evander is connected with the arrival of

Hercules in Italy and his recovery of the cattle of Geryon from the robber Cacus.

EVANGELICAL ALLIANCE, an association of different Christian denominations, formed in London in August, 1846, at a conference of more than 800 clergymen and laymen from all parts of the world, and embracing upward of fifty sections of the Protestant church. The object of the Alliance, according to a resolution of the first conference, is "to enable Christians to realize in themselves and to exhibit to others that a living and everlasting union binds all true believers together in the fellowship of the church." At the same conference the following was adopted as the basis of the Alliance: "Evangelical views in regard to the divine inspiration, authority, and sufficiency of the Holy Scriptures; the right and duty of private judgment in the interpretation of the Holy Scriptures; the unity of the Godhead and the Trinity of persons therein; the utter depravity of human nature in consequence of the fall; the incarnation of the Son of God, His work of atonement for sinners of mankind, and His mediatorial intercession and reign; the justification of the sinner by faith alone; the work of the Holy Spirit in the conversion and sanctification of the sinner; the immortality of the soul, the resurrection of the body, the judgment of the world by our Lord Jesus Christ, with the eternal blessedness of the righteous and the eternal punishment of the wicked; the divine institution of the Christian ministry, and the obligation and perpetuity of the ordinances of Baptism and the Lord's Supper." Such conferences have been held in London in 1851; Paris, 1855; Berlin, 1857; Geneva, 1861; Amsterdam, 1867; New York, 1873; Basel, 1879; and Copenhagen, 1885. They are occupied with the discussion chiefly of the "best methods of counteracting infidelity," promoting Christian union, and generally advancing the cause of Christianity.

EVANGELICAL ASSOCIATION, an American religious denomination originated about the beginning of the present century by Jacob Albrecht, a German Lutheran of Pennsylvania. About 1790 he began an itinerant mission among his fellow-countrymen, chiefly in Pennsylvania; and his labors meeting with considerable success, he was, at an assembly composed of representatives of the different stations, elected in 1800 presiding elder or chief pastor, and shortly afterward rules of government were adopted somewhat similar to those of the Methodist Episcopal Church. In 1816 the first annual conference was held, and in 1843 there was instituted a general conference, composed of delegates chosen by the annual conferences and constituting the highest legislative and judicial authority in the Church. The members of the general conference hold office for four years. In 1887 its membership in the United States amounted to 132,508, with 1,808 churches and 1,069 itinerant and local preachers. The association publishes many religious periodicals.

EVANGELICAL UNION, a religious denomination which originated in the deposition of the Rev. James Morison, minister of a United Secession congregation in Kilmarnock, Scotland, for certain views regarding faith, the work of the Spirit in salvation, and the extent of the atonement, which were regarded by the supreme court of his church as anti-Calvinistic and heretical. The churches connected with the Evangelical Union number nearly ninety, only a few of which are in England. Its ministers are eligible for Congregational churches in England, and for some time negotiations have been in progress for an amalgamation of the denomination with the Congregational Union of Scotland.

EVANS, Sir DE LACY, a distinguished British sol-

dier, son of John Evans of Milltown, Limerick, Ireland, was born in 1787. He was educated at Woolwich Academy, and entered the army in 1807 as ensign in the 22d regiment of foot. He was rapidly promoted by merit, and in 1814 received the rank of lieutenant-colonel. The same year, in command of the 5th West India regiment, he was sent to take part in the war against the United States, where he specially distinguished himself at the capture of Washington, and shared in the attack on Baltimore and the operations before New Orleans. He returned to England in the spring of 1815 in time to accompany the expedition of Wellington to Flanders, and was assistant quartermaster-general at Quatre Bras and Waterloo. As a member of the staff of the Duke of Wellington he accompanied the English army to Paris, and remained there during the occupation of the city by the allies. In 1835 he was sent in command of 10,000 men (the "Spanish Legion") to aid the Queen of Spain against Don Carlos. He remained two years, and gained several brilliant though bloody victories; and on his return in 1839 he was, in recognition of his achievements, created Knight Commander of the Bath. In 1854, on the breaking out of the Russian war, he was appointed to the command of the second division of the Army of the East. On October 26th, by the skillful manner in which he handled his troops, he brilliantly defeated, at a nominal loss, a large division of Russian forces which had attacked his position on Mount Inkerman. In 1856 he received the Grand Cross of the Legion of Honor, and in 1861 he was gazetted general. He died January 9, 1870.

EVANS, OLIVER, an American mechanic, was born at Newport, Delaware, in 1755. He was at an early age apprenticed to a wheelwright, and at the age of twenty-two he invented a machine for making card-teeth in lieu of the old method of making them by hand. In 1780 he became partner with his brothers, who were practical millers; and two years later he completed an invention which totally changed the structure of flour mills. About the same time he discovered the application of steam to land carriages, and in 1786 he endeavored to obtain patents for the two inventions from the State of Pennsylvania. A patent for the former was granted in 1787, but the latter request was considered too absurd to merit consideration. It was granted, however, in 1797 by the State of Maryland. About this time he sent drawings and specifications of his plans to England, but they were received there with the same incredulity as in America. Meantime he made use of the engine he had invented—the first constructed on the high-pressure principle—for his flour mill; and in 1803 he constructed a steam dredging machine, which also propelled itself on land. In 1819 a fire broke out in his factory at Pittsburg, and its consequences were so disastrous to his immediate hopes that he did not long survive its occurrence, dying April 21, 1819.

EVANSON, EDWARD, a theological writer whose views gave rise to much controversy, was born at Warrington, in Lancashire, April 21, 1731. The story of the life, investigations, and conflicts of this heretical churchman of a hundred years ago is full of interest, especially for its anticipations of some of the momentous discussions of the present day. He died at Colford, in Gloucestershire, September 25, 1805.

EVANSTON, a town of Cook county, Ill., twelve miles north of Chicago, founded about 1858 and named after a Chicago physician named Evans. It is a railway and telegraphic center, and its population of over 8,000 is made up largely of persons doing business in Chicago. It is the home of the Northwestern University (Methodist), one of the leading educational

institutions of the West; of the Garrett Biblical Institute, and of a ladies' college.

EVANSVILLE, capital of Vanderburg county, Ind., is situated on the Ohio river, 200 miles below Louisville, Ky. It has railroad communications in various directions; and the Wabash and Erie Canal, completed in 1853, extends from it to Toledo, Ohio, a distance of 400 miles. Evansville is a busy commercial and manufacturing town, and is rapidly increasing. It is the principal shipping port for the grain and pork of southwestern Indiana; and among its other articles of export are lime, cotton, dried fruit, and tobacco. It has flour mills, breweries, iron foundries, tanneries, machine shops, and woolen and cotton factories. Coal and iron ore are found in the vicinity. Population (1890), 53,000.

EVAPORATION is that process by which liquids and solids assume the gaseous state at their free surfaces. The rate at which evaporation takes place depends upon the temperature of the liquid or solid, the extent of the exposed surface, and the facility with which the gaseous particles can escape from the neighborhood of the surface either by diffusion through the air or by the motion of the air itself. Hence a strong wind will generally accelerate the process of drying. The passage from the gaseous into the liquid condition, or *condensation*, and into the solid condition, or *sublimation*, are processes the converse of evaporation.

EVE, the name given by Adam to his wife because she was "mother of all living." Taken literally, the word means *life*.

In the Old Testament Eve is mentioned only in the so-called Jehovistic narrative of Gen. ii-iv. In this narrative, which it is unnecessary to repeat, the original creation of woman is so set forth as to teach the ethical value and dignity of the relation of marriage, which, according to God's original ordinance, is not founded on sensual instincts, but corresponds to a necessity of that higher part of man's nature which raises him above the brute creation (Gen. ii, 18-20).

EVELYN, JOHN, the diarist and author of *Sylvia*, was born at his father's seat at Wotton, in Surrey, on October 31, 1620. In July, 1641, having lost his father during the previous year, he retired from England, which was then on the eve of civil war. Before proceeding with his travels, he expressed his sympathy with the cause of the queen of Bohemia, which was dear to all Protestant Englishmen, by serving in her army for a few days, "according to the compliment." The ten following years he spent abroad, only making brief visits to England.

It is with this period of travel that his famous *Diary*, which he had commenced in imitation of his father at eleven years of age, begins to be full and interesting. This diary is, for many reasons, of value to the student of history and manners. It comprises the long period, so rich in great events, between the outbreak of the civil war and the accession of Anne. Written with no thought of publication, it embodies the frankest expression of its author's opinions, and affords much curious and interesting information which the historian would have probably passed over, but which throws a strong light upon the customs and feelings of the age. And Evelyn's statements are always worthy of at least a respectful hearing.

In 1652 Evelyn returned home with his wife, the amiable and talented daughter of Sir Richard Browne, and settled at *Sayes Court*, the house afterward famous as the residence of Peter the Great. Though well known to be a royalist, he was not molested, except on one occasion, when he was arrested by a party of fanatic soldiers for observing Christmas Day, but, nothing else being proved against him, was at once released. On

the death of Cromwell, he published an *Apology for the Royal Party*. From the Restoration till his death, in 1706, he enjoyed unbroken court favor. In the reign of James II., during the absence of the Earl of Clarendon in Ireland, he acted as one of the commissioners of the Privy Seal, and honorably distinguished himself by refusing, at the risk of offending the king, to sign an illegal license of popish books. But, with this exception, he never accepted an office of political importance. His life, however, was filled with useful work. His writings were exceedingly numerous. The best known were his *Diary* and *Sylvia*, an elaborate treatise on arboriculture.

EVERDINGEN. Three painters of this name are recorded in the history of Dutch art—all of them related; but only one deserves to be remembered.

ALLART VON EVERDINGEN, the son of a government clerk at Alkmaar, was born, it is said, in 1621, and educated, if we believe an old tradition, under Roeland Savery at Utrecht. He wandered in 1645 to Haarlem, where he studied under Peter de Molyn, and finally settled about 1657 at Amsterdam, where he remained till his death. It is still an open question when de Molyn wielded influence on his clever disciple. Alkmaar, a busy trading place near the Texel, had little of the picturesque for an artist except polders and downs or waves and sky. Accordingly we find Allart at first a painter of coast scenery. But on one of his expeditions he is said to have been cast ashore in Norway, and during the repairs of his ship he visited the inland valleys, and thus gave a new course to his art. In early pieces he cleverly represents the sea in motion under varied, but mostly clouded, aspects of sky. Their general intonation is strong and brown, and effects are rendered in a powerful key. Storm is the marked feature of sea-pieces in the Stædel or Robartes collection; and a strand with wreckers at the foot of a cliff in the Munich Pinakothek may be a reminiscence of personal adventure in Norway. But the Norwegian coast was studied in calms as well as in gales; and a fine canvas belonging to Professor Piloty at Munich shows fishermen on a still and sunny day taking herrings to a smoking hut at the foot of a Norwegian crag. The earliest of Everdingen's sea pieces belongs to Mr. Von Friesen at Dresden, and bears the date of 1640. After 1645 we meet with nothing but representations of inland scenery, and particularly of Norwegian valleys, remarkable alike for wildness and a decisive depth of tone. The master's favorite theme is a fall in a glen, with mournful fringes of pines interspersed with birch, and log huts at the base of rocks and craggy slopes. The water tumbles over the foreground, so as to entitle the painter to the name of "inventor of cascades." Five of Everdingen's cascades are in the museum of Copenhagen alone; of these, one is dated 1647, another 1649. In the Hermitage at Petersburg is a fine example of 1647; another in the Pinakothek at Munich was finished in 1656. Being a collector as well as an engraver and painter, he brought together a large number of works of all kinds and masters; and the sale of these by his heirs at Amsterdam on March 11, 1676, gives an approximate clue to the date of the painter's death.

EVEREST, SIR GEORGE, C.B., a distinguished surveyor and geographer, was born July 4, 1790. The geodetical labors of Sir George Everest rank among the finest achievements of their kind; and more especially his measurement of the meridional arc of India, 11 $\frac{1}{2}$ ° in length, is accounted as unrivaled in the annals of the science. In great part the Indian survey is what he made it. The name of Everest has been given in his honor to the highest ascertained peak of the Himalayas, and thus of the world.

EVERETT, a town of Middlesex county, Mass., three miles north of Boston. It possesses railroad and telegraphic facilities, and is connected with Boston by a street railway. Its population in 1890 was 6,000.

EVERETT, ALEXANDER HILL, an American author and diplomatist, born at Boston, March 19, 1792, was the son of Rev. Oliver Everett, for some time a Congregational minister in Boston, and afterward judge of probate for Norfolk County. He graduated at Harvard College, Cambridge, in 1806, taking the highest honors of his year, though the youngest member of his class. A year after he began the study of law in the office of John Quincy Adams, afterward President of the United States. In 1809 Adams was appointed minister to Russia, and Everett accompanied him as his private secretary, remaining attached to the American legation in Russia until 1811. His assiduity in the diplomatic career resulted in his promotion successively to the position of secretary of legation and afterward of chargé d'affaires at the Hague. He was subsequently minister to Spain, under the presidency of John Quincy Adams. At that time Spain recognized none of the governments established by her revolted colonies, and Everett became the medium of all communications between the Spanish Government and the several nations of Spanish origin which had been established, by successful revolutions, on the other side of the ocean. He died, May 29, 1847, at Hong Kong, whither he had been sent as commissioner of the United States, before the present system of diplomatic intercourse with China was inaugurated.

EVERETT, EDWARD, brother of the preceding, was born in Dorchester, near Boston, on November 11, 1794. His father died in his childhood, and his mother removed to Boston with her family after her husband's death. When he was little more than thirteen he entered Harvard College; and as the full undergraduate course is four years, he became "bachelor of arts" at seventeen. He then took the first college honors of his class. While at college he was the chief editor of *The Lyceum*, the earliest in the series of college journals published at the American Cambridge. His earlier predilections were for the study of law, but the advice of Joseph Stevens Buckminster, a distinguished preacher in Boston, led him to prepare for the pulpit, and in this calling he at once distinguished himself. He was called to the ministry of one of the largest Boston churches before he was twenty years old. His sermons and his theological writings attracted wide attention in that community. But his tastes were then, as always, those of a scholar; and, in 1814, after a service of a little more than a year in the pulpit, he resigned his charge to accept a professorship of Greek literature in Harvard College. After nearly five years spent in Europe in preparation, he entered with alacrity on his duties, and, for five years more, gave a vigorous impulse, not simply to the study of Greek, but to all the work of the college. About the same time he assumed the charge of the *North American Review*, which now became a quarterly; and he was indefatigable in contributing on a great variety of subjects, with a spirit like Sydney Smith's in the earlier days of the *Edinburgh Review*. He vigorously defended American institutions against the sneers of English travelers, and had reason to congratulate himself on the success of a series of articles written to bring about a better mutual understanding between Englishmen and Americans.

In 1824 he was chosen a member of Congress, and held a seat for ten years, supporting generally the administration of Adams, and in opposition to that of Jackson, which succeeded it. In the winter of 1835 he

was nominated as Governor of Massachusetts, and was chosen in the autumn of the same year. He brought to the duties of the office the untiring diligence which is the characteristic of his public life. We can only allude to a few of the measures which received his efficient support—*e. g.*, the establishment of the board of education, the first of such boards in the United States, the scientific surveys of the State, the first of such public surveys, the criminal law commission, and the preservation of a sound currency under the panic of 1837.

Everett filled the office of governor for four years. The political parties in Massachusetts were at this time very nearly balanced, and divisions of opinion on local questions (the militia and temperance laws) caused his defeat at the election in November, 1839. Judge Morton, the opposing candidate, succeeded by a single vote, out of more than a hundred thousand. Everett availed himself of this opportunity, the following spring, to make a visit with his family to Europe. In 1841, while residing in Florence, he was named United States minister to England, and arrived in London to enter upon the duties of his mission at the close of that year. Great questions were at that time open between the two countries—the northeastern boundary, the affair of M'Leod, the seizure of American vessels on the coast of Africa, in the course of a few months the affair of the *Creole*, to which were soon added Oregon and Texas. His position was more difficult by the frequent changes that took place in the department at home, which, in the course of two years, was occupied successively by Messrs. Webster, Legaré, Upshur, Calhoun, and Buchanan. From all these gentlemen Everett received marks of approbation and confidence.

Immediately after the accession of Polk to the presidency Everett was recalled. Shortly before his return the presidency of Harvard College was vacated by the resignation of Hon. Josiah Quincy, and Everett was strongly urged by the friends and governors of the institution to accept this office, which he did in the month of January, 1846. He filled this place of equal distinction and usefulness for about three years. It was a position congenial with his tastes, in harmony with the early associations of his life, and one which seemed to promise large opportunity of applying for the benefit of the rising generation the fruit of his maturer studies and varied experience in life. His health, unfortunately, soon began to suffer, and before long became seriously impaired under the burdens and cares of the office, and he was compelled, at the close of the year 1848, to tender his resignation. But, on the death of his friend, Webster, to whom he had always been closely attached, and of whom he was always a confidential adviser, he was named by President Fillmore secretary of state, and he held that post for the remaining months of Fillmore's administration, leaving it to go into the Senate as the representative of Massachusetts. Under the work of the long session of 1853-54, in which that "Kansas-Nebraska" question first appeared in form which ripened into the American civil war, his health gave way. He resigned his seat, on the orders of his physician, and retired to what was called private life.

But, as it proved, the remaining ten years of his life most widely established his reputation and influence throughout America. As early as 1820 he had established a reputation, such as few men in later days have enjoyed, as an orator. He was frequently invited, as other public men are invited in America, to deliver an "oration" on one or another public topic of historical or other interest. With him these "orations," instead of being the ephemeral entertainments of an hour, became careful studies of some important theme, so that the collected edition of them is now one of the standard

books of reference in an American's library. Eager to avert, if possible, the impending conflict of arms, Everett prepared an "oration" on Washington, which he delivered in every part of America. In a printed note accompanying the published edition of it, he names nearly 125 occasions, in almost every State in the Union, in every section but the extreme Southwest, where it was repeated. This exception was caused only by illness in his family, after he had received invitations to go to that quarter also. He traveled really as an ambassador of peace among irritated States. The eagerness to hear him was so great that, from the first, his hosts arranged, almost always, that tickets should be sold to all auditors; and as he traveled wholly at his own charges, the audiences thus contributed more than \$100,000 for the purchase of the old home of Washington at Mount Vernon, and the securing it as a shrine for American patriotism.

Everett's name, in direct violation to his wishes, was presented, with Mr. Bell's, as a candidate of North and South jointly for vice-president in the election of 1860, when Abraham Lincoln was elected. The Civil War followed. Reconciliation was impossible, and he gave all his learning, zeal, and eloquence to the support of the national government. For four years he was the trusted adviser of every department; he was called upon in every quarter to speak at public meetings. He delivered the last of his great orations at Gettysburg, after the battle, on the consecration of the national cemetery there. In February, 1865, the success of the national arms was certain. He had the pleasure of speaking at a public meeting in Boston to raise funds for the Southern poor in Savannah, just taken by General Sherman. At that meeting he caught cold, which was followed by sudden illness, and by his death January 15, 1865.

In Everett's life and career was a combination of the results of diligent training, unflinching industry, delicate literary tastes, and unequalled acquaintance with modern politics.

EVESHAM, a municipal and parliamentary borough and market town of Worcestershire, England, is situated in the vale of Evesham, on the river Avon, over which there is an ancient stone bridge of eight arches, connecting it with Bengeworth parish, which forms part of the borough. At Evesham was fought, on August 14, 1265, the famous battle between Prince Edward, afterward Edward I., and Simon de Montfort, Earl of Leicester, in which the latter was totally defeated, and he and his son slain.

EVIDENCE. It is necessary to distinguish two common meanings of the word evidence which are not infrequently confused. Evidence sometimes means the ascertained facts from which we infer the existence of some other fact or principle. It also means the testimony of persons as to the existence of facts, from which testimony we infer that these or other facts do or do not exist. It is the latter sense alone which is appropriate in speaking of judicial evidence. The rules of the law of evidence are based chiefly on considerations relating to human testimony. Their fundamental purpose is to guard and test the truthfulness of statements as to matters of fact made in a court of justice. The further question, what conclusion is to be drawn from the facts, supposing them to be true, is the subject of few if any specific rules. The general theory of relevancy excludes testimony relating to facts from which no conclusion whatever could be drawn with reference to the facts in issue. On the other hand, in the case of what is called "conclusive proof," the law directs that on certain evidence the judge must regard some fact as proved and reject any evidence offered against it. Between these two extremes the law leaves the relation between facts

in evidence and facts in issue to the unaided logic or common sense of the tribunal.

EVOLUTION. In the former half of the eighteenth century, the term "evolution" was introduced into biological writings, in order to denote the mode in which some of the most eminent physiologists of that time conceived that the generation of living things took place; in opposition to the hypothesis advocated in the preceding century by Harvey, in that remarkable work which would give him a claim to rank among the founders of biological science, even had he not been the discoverer of the circulation of the blood.

One of Harvey's prime objects is to defend and establish on the basis of direct observation, the opinion already held by Aristotle; that, in the higher animals at any rate, the formation of the new organism by the process of generation takes place, not suddenly, by simultaneous accretion of rudiments of all or the most important of the organs of the adult; nor by sudden metamorphosis of a formative substance into a miniature of the whole, which subsequently grows; but by *epigenesis*, or successive differentiation of a relatively homogeneous rudiment into the parts and structures which are characteristic of the adult.

Harvey proceeds to contrast this view with that of the "Medici," or followers of Hippocrates and Galen, who, "badly philosophizing," imagined that the brain, the heart, and the liver were simultaneously first generated in the form of vesicles; and, at the same time, while expressing his agreement with Aristotle in the principle of epigenesis, he maintains that it is the blood which is the primal generative part, and not, as Aristotle thought, the heart.

In the latter part of the seventeenth century, the doctrine of epigenesis thus advocated by Harvey was controverted on the ground of direct observation by Malpighi, who affirmed that the body of the chick is to be seen in the egg before the *punctum sanguineum* makes its appearance. But from this perfectly correct observation a conclusion which is by no means warranted was drawn; namely, that the chick as a whole really exists in the egg antecedently to incubation; and that what happens in the course of the latter process is no addition of new parts, but a simple expansion or unfolding of the organs which already exist, though they are too small and inconspicuous to be discovered. The weight of Malpighi's observations therefore fell into the scale of that doctrine which Harvey terms metamorphosis, in contradistinction to epigenesis.

The views of Malpighi were warmly welcomed on philosophical grounds by Leibnitz, who found in them a support to his hypothesis of monads, and by Malebranche; while, in the middle of the eighteenth century, not only speculative considerations, but a great number of new and interesting observations on the phenomena of generation, led the ingenious Bonnet, and Haller, the first physiologist of the age, to adopt, advocate, and extend them.

Bonnet affirms that, before fecundation, the hen's egg contains an excessively minute but complete chick; and that fecundation and incubation simply cause this germ to absorb nutritious matters, which are deposited in the interstices of the elementary structures of which the miniature chick, or germ, is made up. The consequence of this intussusceptive growth is the "development" or "evolution" of the germ into the visible bird. Thus an organized individual "is a composite body consisting of the original, or *elementary* parts, and of the matters which have been associated with them by the aid of nutrition;" so that, if these matters could be extracted from the individual (*lout*), it would, so to speak, become concentrated in a point, and would thus be

restored to its primitive condition of a *germ*; "just as, by extracting from a bone the calcareous substance which is the source of its hardness, it is reduced to its primitive state of gristle or membrane."

"Evolution" and "development" are, for Bonnet, synonymous terms; and since by "evolution" he means simply the expansion of that which was invisible into visibility, he was naturally led to the conclusion, at which Leibnitz had arrived by a different line of reasoning, that no such thing as generation, in the proper sense of the word, exists in nature. The growth of an organic being is simply a process of enlargement, as a particle of dry gelatine may be swelled up by the intussusception of water; its death is a shrinkage, such as the swelled jelly might undergo on dessication. Nothing really new is produced in the living world, but the germs which develop have existed since the beginning of things; and nothing really dies, but, when what we call death takes place, the living thing shrinks back into its germ state.

The two parts of Bonnet's hypothesis, namely, the doctrine that all living things proceed from preëxisting germs, and that these contain, one inclosed within the other, the germs of all future living things, which is the hypothesis of "*emboîtement*," and the doctrine that every germ contains in miniature all the organs of the adult, which is the hypothesis of evolution or development, in the primary senses of these words, must be carefully distinguished. In fact, while holding firmly by the former, Bonnet more or less modified the latter in his later writings and, at length, he admits that a "germ" need not be an actual miniature of the organism; but that it may be merely an "original preformation" capable of producing the latter.

But, thus defined, the germ is neither more nor less than the "*particula genitalis*" of Aristotle, or the "*primordium vegetale*" or "*ovum*" of Harvey; and the "evolution" of such a germ would not be distinguishable from "epigenesis."

Supported by the great authority of Haller, the doctrine of evolution, or development, prevailed throughout the whole of the eighteenth century, and Cuvier appears to have substantially adopted Bonnet's later views, though probably he would not have gone all lengths in direction of "*emboîtement*."

Bonnet's eminent contemporary, Buffon, held nearly the same views with respect to the nature of the germ, and expresses them even more confidently.

It is a striking example of the difficulty of getting people to use their own powers of investigation accurately, that this form of the doctrine of evolution should have held its ground so long; for it was thoroughly and completely exploded, not long after its enunciation, by Caspar Frederick Wolff, who in his *Theoria Generationis*, published in 1759, placed the opposite theory of epigenesis upon the secure foundation of fact, from which it has never been displaced. But Wolff had no immediate successors. The school of Cuvier was lamentably deficient in embryologists; and it was only in the course of the first thirty years of the present century, that Prévost and Dumas in France, and, later on, Döllinger, Pander, Von Bär, Rathke, and Remak in Germany, founded modern embryology; and, at the same time, proved the utter incompatibility of the hypothesis of evolution as formulated by Bonnet and Haller, with easily demonstrable facts.

Nevertheless, though the conceptions originally denoted by "evolution" and "development" were shown to be untenable, the words retained their application to the process by which the embryos of living beings gradually make their appearance; and the terms "Development," "Entwicklung," and "Evolutio," are now indis-

criminally used for the series of genetic changes exhibited by living beings, by writers who would emphatically deny that "Development," "Entwickelung" or "Evolutio," in the sense in which these words were usually employed by Bonnet or Haller, ever occurs.

Evolution, or development, is, in fact, at present employed in biology as a general name for the history of the steps by which any living being has acquired the morphological and the physiological characters which distinguish it. As civil history may be divided into biography, which is the history of individuals, and universal history, which is the history of the human race, so evolution falls naturally into two categories—the evolution of the individual, and the evolution of the sum of living beings. It will be convenient to deal with the modern doctrine of evolution under these two heads.

No exception is, at this time, known to the general law, established upon an immense multitude of direct observations, that every living thing is evolved from a particle of matter in which no trace of the distinctive characters of the adult form of that living thing is discernible. This particle is termed a *germ*.

The definition of a germ as "matter potentially alive, and having within itself the tendency to assume a definite living form," appears to meet all the requirements of modern science. For, notwithstanding it might be justly questioned whether a germ is not merely potentially, but rather actually, alive, though its vital manifestations are reduced to a minimum, the term "potential" may fairly be used in a sense broad enough to escape the objection. And the qualification of "potential" has the advantage of reminding us that the great characteristic of the germ is not so much what it is, but what it may, under suitable conditions, become. Harvey shared the belief of Aristotle—whose writings he so often quotes, and of whom he speaks as his precursor and model, with the generous respect with which one genuine worker should regard another—that such germs may arise by a process of "equivocal generation" out of non-living matter; and the aphorism so commonly ascribed to him, "*omne vivum ex ovo*" (all that lives comes from the egg), and which is indeed a fair summary of his reiterated assertions, though incessantly employed against the modern advocates of spontaneous generation, can be honestly so used only by those who have never read a score of pages of the *Exercitationes*. Harvey, in fact, believed as implicitly as Aristotle did in the equivocal generation of the lower animals. But, while the course of modern investigation has only brought out into greater prominence the accuracy of Harvey's conception of the nature and mode of development of germs, it has as distinctly tended to disprove the occurrence of equivocal generation, or abiogenesis, in the present course of nature. In the immense majority of both plants and animals, it is certain that the germ is not merely a body in which life is dormant or potential, but that it is itself simply a detached portion of the substance of a preëxisting living body; and the evidence has yet to be adduced which will satisfy any cautious reasoner that "*omne vivum ex vivo*" (all that lives originates from life), is not as well established a law of the existing course of nature as "*omne vivum ex ovo*."

In all instances which have yet been investigated, the substance of this germ has a peculiar chemical composition, consisting of, at least, four elementary bodies, viz.: carbon, hydrogen, oxygen, and nitrogen, united into the ill-defined compound known as protein, and associated with much water, and very generally, if not always, with sulphur and phosphorus in minute propor-

tions. Moreover, up to the present time, protein is known only as a product and constituent of living matter. Again, a true germ is either devoid of any structure discernible by optical means, or, at most, it is a simple nucleated cell.

In all cases, the process of evolution consists in a succession of changes of the form, structure, and functions of the germ, by which it passes, step by step, from an extreme simplicity, or relative homogeneity, of visible structure, to a greater or less degree of complexity or heterogeneity; and the course of progressive differentiation is usually accompanied by growth, which is effected by intussusception. This intussusception, however, is a very different process from that imagined either by Buffon, or by Bonnet. The new material is, in great measure, not only absorbed but assimilated, so that it becomes part and parcel of the molecular structure of the living body into which it enters. And, so far from the fully developed organism being simply the germ *plus* the nutriment which it has absorbed, it is probable that the adult contains neither in form, nor in substance, more than an inappreciable fraction of the constituents of the germ, and that it is almost wholly made up of assimilated and metamorphosed nutriment. In the great majority of cases, at any rate, the full grown organism becomes what it is by the absorption of non-living matter, and its conversion into living matter of a specific type.

In all animals and plants above the lowest, the germ is a nucleated cell, using that term in its broadest sense; and the first step in the process of the evolution of the individual is the division of this cell into two or more portions. The process of division is repeated, until the organism, from being unicellular, becomes multicellular. The single cell becomes a cell-aggregate; and it is to the growth and metamorphosis of the cells of the cell-aggregate thus produced, that all the organs and tissues of the adult owe their origin.

In certain animals belonging to every one of the chief groups into which the *Metazoa* are divisible, the cells of the cell-aggregate which results from the process of yelk division, and which is termed a *morula*, diverge from one another in such a manner as to give rise to a central space, around which they dispose themselves as a coat or envelope; and thus the morula becomes a vesical filled with fluid, the *planula*. The wall of the planula is next pushed in on one side, or invaginated, whereby it is converted into a double walled sac with an opening, the *blastopore*, which leads into the cavity lined by the inner wall. This cavity is the primitive alimentary cavity, or *archenteron*; the inner, or invaginated, layer is the *hypoblast*, the outer the *epiblast*; and the embryo, in this stage, is termed a *gastrula*. In all the higher animals, a layer of cells makes its appearance between the hypoblast and the epiblast, and is termed the *mesoblast*. In the further course of development, the epiblast becomes the ectoderm or epidermic layer of the body; the hypoblast becomes the epithelium of the middle portion of the alimentary canal; and the mesoblast gives rise to all the other tissues, except the central nervous system, which originates from an ingrowth of the epiblast.

With more or less modification in detail, the embryo has been observed to pass through these successive evolutionary stages in sundry Sponges, Coelenterates, Worms, Echinoderms, Tunicates, Arthropods, Mollusks, and Vertebrates; and there are valid reasons for the belief, that all animals of higher organization than the *Protozoa* agree in the general character of the early stages of their individual evolution. Each, starting from the condition of a simple nucleated cell, becomes a cell-aggregate; and this passes through a condition which

represents the gastrula stage, before taking in the features distinctive of the group to which it belongs.

So far as individual plants and animals are concerned, therefore, evolution is not a speculation but a fact; and it takes place by epigenesis.

Nevertheless, though the doctrine of epigenesis, as understood by Harvey, has definitively triumphed over the doctrine of evolution as understood by his opponents of the eighteenth century, it is not impossible that, when the analysis of the process of development is carried still further, and the origin of the molecular components of the physical gross, though sensibly minute, bodies which we term germs is traced, the theory of development will approach more nearly to metamorphosis than to epigenesis. Harvey thought that impregnation influenced the female organism as a contagion; and that the blood, which he conceived to be the first rudiment of the germ, arose in the clear fluid of the "colliquamentum" of the ovum by a process of concrescence, as a sort of living precipitate. We now know, on the contrary, that the female germ or ovum, in all the higher animals and plants, is a body which possesses the structure of a nucleated cell; that impregnation consists in the fusion of the substance of another more or less modified nucleated cell, the male germ, with the ovum; and that the structural components of the body of the embryo are all derived, by a process of division, from the coalesced male and female germs. Hence it is conceivable, and indeed probable, that every part of the adult contains molecules derived both from the male and from the female parent; and that, regarded as a mass of molecules, the entire organism may be compared to a web of which the warp is derived from the female and the woof from the male. And each of these may constitute one individuality, in the same sense as the whole organism is one individual, although the matter of the organism has been constantly changing.

The Evolution of the Sum of Living Beings.—The notion that all kinds of animals and plants may have come into existence by the growth and modification of primordial germs, is as old as speculative thought; but the modern scientific form of the doctrine can be traced historically to the influence of several converging lines of philosophical speculation and of physical observation, none of which go further back than the seventeenth century. These are:

1. The enunciation by Descartes of the conception that the physical universe, whether living or not living, is a mechanism, and that, as such, it is explicable on physical principles.

2. The observation of the gradations of structure, from extreme simplicity to very great complexity, presented by living things, and of the relation of these graduated forms to one another.

3. The observation of the existence of an analogy between the series of gradations presented by the species which compose any great group of animals or plants, and the series of embryonic conditions of the highest members of that group.

4. The observation that large groups of species of widely different habits present the same fundamental plan of structure; and that parts of the same animal or plant, the functions of which are very different, likewise exhibit modifications of a common plan.

5. The observation of the existence of structures, in a rudimentary and apparently useless condition, in one species of a group, which are fully developed and have definite functions in other species of the same group.

6. The observation of the effects of varying conditions in modifying living organisms.

7. The observation of the facts of geographical distribution.

8. The observation of the facts of the geological succession of the forms of life.

Notwithstanding the elaborate disguise which fear of the powers that were led Descartes to throw over his real opinions, it is impossible to read the *Principes de la Philosophie* without acquiring the conviction that this great philosopher held that the physical world and all things in it, whether living or not living, have originated by a process of evolution, due to the continuous operation of purely physical causes, out of a primitive relatively formless matter.

Thus, in the end of the seventeenth century, the seed was sown which has at intervals brought forth recurrent crops of evolution hypotheses, based, more or less completely, on general reasonings.

The first three volumes of Treviranus' *Biologie*, which contains his general views of evolution, appeared between 1802 and 1805. The *Recherches sur l'organisation des corps vivants*, which sketches out Lamarck's doctrines, was published in 1802, but the full development of his views, in the *Philosophie Zoologique*, did not take place until 1809.

The *Biologie* and the *Philosophie Zoologique* are both very remarkable productions, and are still worthy of attentive study, but they fell upon evil times. The vast authority of Cuvier was employed in support of the traditionally respectable hypotheses of special creation and of catastrophism, and the wild speculations of the *Discours sur les Révolutions de la Surface du Globe* were held to be models of sound scientific thinking, while the really much more sober and philosophical hypotheses of the *Hydrogéologie* were scouted.

Nevertheless, the work had been done. The conception of evolution was henceforward irrepresible, and it incessantly reappears, in one shape or another, up to the year 1858, when Mr. Darwin and Mr. Wallace published their *Theory of Natural Selection*. The *Origin of Species* appeared in 1859, and it is within the knowledge of all whose memories go back to that time, that, henceforth, the doctrine of evolution has assumed a position and acquired an importance which it never before possessed. In the *Origin of Species*, and in his other numerous and important contributions to the solution of the problem of biological evolution, Mr. Darwin confines himself to the discussion of the causes which have brought about the present condition of living matter, assuming such matter to have once come into existence. On the other hand, Mr. Spencer and Professor Haeckel have dealt with the whole problem of evolution. The profound and vigorous writings of Mr. Spencer embody the spirit of Descartes in the knowledge of our own day, and may be regarded as the "*Principes des Philosophie*" of the nineteenth century, while, whatever hesitation may not infrequently be felt by less daring minds, in following Haeckel in many of his speculations, his attempt to systematize the doctrine of evolution and to exhibit its influence as the central thought of modern biology, cannot fail to have a far-reaching influence on the progress of science.

If we seek for the reason of the difference between the scientific position of the doctrine of evolution a century ago, and that which it occupies now, we shall find it in the great accumulation of facts, the several classes of which have been enumerated above, under the second to the eighth heads. For those which are grouped under the second to the seventh of these classes, respectively, have a clear significance on the hypothesis of evolution, while they are unintelligible if that hypothesis be denied. And those of the eighth group are not only unintelligible without the assumption of evolution, but can be proved never to be discordant with that hypothesis, while, in some cases, they are exactly such as

the hypothesis requires. The demonstration of these assertions would require a volume, but the general nature of the evidence on which they rest may be briefly indicated.

The accurate investigation of the lowest forms of animal life, commenced by Leeuwenhoek and Swammerdam, and continued by the remarkable labors of Reaumur, Trembley, Bonnet, and a host of other observers in the latter part of the seventeenth and the first half of the eighteenth centuries, drew the attention of biologists to the gradation in the complexity of organization which is presented by living beings, and culminated in the doctrine of the "échelle des êtres," so powerfully and clearly stated by Bonnet; and, before him, adumbrated by Locke and by Leibnitz. In the then state of knowledge, it appeared that all the species of animals and plants could be arranged in one series; in such a manner that, by insensible gradations, the mineral passed into the plant, the plant into the polype, the polype into the worm, and so, through gradually higher forms of life, to man, at the summit of the animated world.

But, as knowledge advanced, this conception ceased to be tenable in the crude form in which it was first put forward. Taking into account existing animals and plants alone, it became obvious that they fell into groups which were more or less sharply separated from one another; and, moreover, that even the species of a genus can hardly ever be arranged in linear series. Their natural resemblances and differences are only to be expressed by disposing them as if they were branches springing from a common hypothetical center.

Lamarck, while affirming the verbal proposition that animals form a single series, was forced by his vast acquaintance with the details of zoölogy to limit the assertion to such a series as may be formed out of the abstractions constituted by the common characters of each group.

Cuvier on anatomical, and Von Baer on embryological grounds, made the further step of proving that, even in this limited sense, animals cannot be arranged in a single series, but that there are several distinct plans of organization to be observed among them, no one of which, in its highest and most complicated modification, leads to any of the others.

The conclusions enunciated by Cuvier and Von Baer have been confirmed in principle by all subsequent research into the structure of animals and plants. But the effect of the adoption of these conclusions has been rather to substitute a new metaphor for that of Bonnet than to abolish the conception expressed by it. Instead of regarding living things as capable of arrangement in one series like the steps of a ladder, the results of modern investigation compel us to dispose them as if they were the twigs and branches of a tree. The ends of the twigs represent individuals, the smallest groups of twigs species, larger groups genera, and so on, until we arrive at the source of all these ramifications of the main branch, which is represented by a common plan of structure. At the present moment, it is impossible to draw up any definition, based on broad anatomical or developmental characters, by which any one of Cuvier's great groups shall be separated from all the rest. On the contrary, the lower members of each tend to converge toward the lower members of all the others. The same may be said of the vegetable world. The apparently clear distinction between flowering and flowerless plants has been broken down by the series of gradations between the two exhibited by the *Lycopodiaceæ*, *Rhizocarpeæ*, and *Gymnospermeæ*. The groups of *Fungi*, *Lichenes*, and *Algæ* have completely run into one another, and, when the lowest forms of each are

alone considered, even the animal and vegetable kingdoms cease to have a definite frontier.

If it is permissible to speak of the relations of living forms to one another metaphorically, the similitude chosen must undoubtedly be that of a common root, whence two main trunks, one representing the vegetable and one the animal world, spring; and, each dividing into a few main branches, these subdivide into multitudes of branchlets, and these into smaller groups of twigs.

Evolution in Philosophy.—The modern biological doctrine of evolution, which regards the higher forms of life as gradually arising out of the lower, owes its chief philosophic significance to the fact that it renders definite and precise one part of a general theory of the world viewed as an orderly succession of events or as a process of becoming. This theory is put forward as an answer to one of the two problems of philosophy conceived as an interpretation of real existence. The first of these problems concerns itself with what may be called the static aspect of the world, and inquires into the ultimate nature of all reality (matter and mind), viewed as coexistent and apart from time. The second problem treats of the dynamical aspect of the world, and has to do with the process by which the totality of things has come to be what it is, and is still being transformed. It is this latter problem which the various theories of evolution seek to solve.

The most general meaning of evolution may be defined as follows: Evolution includes all theories respecting the origin and order of the world which regard the higher or more complex forms of existence as following and depending on the lower and simple forms, which represent the course of the world as a gradual transition from the indeterminate to the determinate, from the uniform to the varied, and which assume the cause of this process to be immanent in the world itself that is thus transformed. All theories of evolution, properly so called, regard the physical world as a gradual progress from the simple to the complex, look upon the development of organic life as conditioned by that of the inorganic world, and view the course of mental life both of the individual and of the race as correlated with a material process. This definition covers roughly the principal historical systems bearing the name of evolution, as well as others which have hardly as yet been characterized by this title.

It is clear by this definition that we cannot now press the etymological force of the word. Evolution has no doubt often been conceived as an unfolding of something already contained in the original, and this view is still commonly applied to organic evolution both of the individual and of the species. It will be found that certain metaphysical systems of evolution imply this idea of an unfolding of something existing in germ or at least potentially in the antecedent. On the other hand, the modern doctrine of evolution, with its ideas of elements which combine, and of causation as transformation of energy, does not necessarily imply this notion. It may be remarked that some of the arguments brought against the modern doctrine rest on the fallacious assumption that the word is still used in its etymological sense, and that consequently that which evolves must contain in some shape what is evolved (e.g., inorganic matter must contain life and consciousness).

Evolution is thus almost synonymous with progress, though the latter term is usually confined to processes of development in the moral as distinguished from the physical world. Further, this idea, as Mr. Spencer remarks, has rather a subjective than an objective source, since it points to an increased value in existence as judged by our feelings. At the same time, inasmuch as conscious and more particularly human life is looked on

by the evolutionist as the highest phase of all development, and since man's development is said to be an increase in well-being and happiness, we do not greatly err when we speak of evolution as a transition from the lower to the higher, from the worse to the better. Another respect in which the whole process of evolution may be said to be a progress is in its relation to our perceptions as æsthetic spectators, the higher phases of the process being the more varied, the fuller, and the more perfect. Apart from these subjective estimates, evolution is first of all as a whole a progress from the lower to the higher, in the sense that it is a substitution of a complex for a simple type of existence; and it is such a progress, secondly, in the narrow sense of organic development if not in the wider sense of cosmic development, inasmuch as all advance implies a larger measure of adaptation and so of permanence.

The hypothesis of evolution aims at answering a number of questions respecting the becoming or genesis of things. Of these the first is the problem of explaining change, that is to say, of accounting for that incessant process of transformation which the world manifests. The form which this question has commonly taken is, "What is motion, and how does it arise?" The second inquiry relates to the factor of intelligible order in the world, to the existence of general classes of things, including minds, of universal laws, and finally to that appearance of a rational end toward which things tend. Thirdly, it is necessary to account for the origin of organic beings which appear to be subordinated to different principles from those which control inorganic bodies. These are the principal inquiries which the various theories of evolution aim more or less completely at answering. As a subordinate question, we may mention the meaning of human history, and its relation to physical processes.

In seeking to answer these questions, the hypothesis of an evolution of the cosmos with all that it contains competes, in part at least, with two other principal doctrines respecting the origin of the world. These are the theory of direct creation by a personal Deity and that of emanation.

It is clear that the doctrine of evolution is directly antagonistic to that of creation. Just as the biological doctrine of the transmutation of species is opposed to that of special creations, so the idea of evolution as applied to the formation of the world as a whole, is opposed to that of a direct creative volition. It substitutes within the ground which it covers the idea of a natural and necessary process for that of an arbitrary volitional process.

The theory of a personal Creator answers the questions enumerated above by referring the form of the world to an act of direct creation. As an extreme doctrine, it views matter as well as form as the product of divine volition; in a modified form, it conceives the Deity as simply fashioning the uncreated material of the world; and in a still more restricted form, it regards the universal laws or forms which are impressed on things as co-eternal with the Deity. Advancing knowledge has gradually limited the sphere of direct creative activity, by referring the present order of the world to the action of secondary causes. Hence this theory only now competes with the hypothesis of evolution at one or two points, more especially the production of living forms, the origin of the human mind, and the nature of history — which last is conceived as somehow controlled by divine action in the shape of Providence. The question how far the doctrine of evolution, in its most extended and elaborate form, absolutely excludes the idea of creative activity need not be dwelt on here. It is sufficient to say that the theory of

evolution, by assuming an intelligible and adequate principle of change, simply eliminates the notion of creation from those regions of existence to which it is applied.

The doctrine of emanation, which had its origin in the East, and was developed by the Neoplatonists, Gnostics, and Cabalists, is a philosophic transformation of the idea of an original creation of the world. It regards the world as a product of the divine nature, and so far it is a theory of creation. On the other hand, it conceives of this production as necessary, and analogous rather to a physical than to a moral action. In this respect it agrees with the doctrine of evolution. It further coincides with this doctrine in the recognition of a scale of existence. It differs from this last inasmuch as it reverses the order of evolution, by making the original stage the most perfect and all later stages a succession of degradations. Let us now see how the doctrine of evolution deals with the problems of becoming as above defined. And here it becomes necessary to distinguish between different ways of formulating and interpreting the idea of evolution. The various modes of conceiving and interpreting the idea of a natural evolution of things depend on the answers given to three principal questions respecting the nature and causes of the process. These are: — How far is the process a real objective one? What is the nature of that reality which makes the content, so to speak, of the process of evolution? and, How is the process effected?

First of all, very different views may be taken of the reality of the process of becoming, generation, and transformation. On the one side we have the extreme view of the Eleatics, that there is no such thing as change or individual object, that real being is one and unchangeable, and that what appears like the formation and destruction of things is an illusion of the senses. At the other extreme we have the view that all reality consists in the process of becoming, or self-realization, and that nothing persists save this law of evolution itself. Between these two extremes there lie a number of intermediate conceptions, as that of a varying and progressive activity, of a persistent force, or of a gradual manifestation of an unchanging substance. The reality of the process is viewed in a peculiar light from the standpoint of modern Subjective Idealism, which regards time as nothing but a mental form. It is to be added that the process of cosmic evolution may present different degrees of reality. Thus to the ancient atomists the real part of the process is the combination of atoms. There is no absolute generation or destruction of things. Further, the evolution of the world of sensible qualities (color, etc.) of things, is illusory, and has only a subjective existence in our sensations. The modern scientific doctrine of evolution carries out this view of its reality, both by its conception of the material world as objectively real only in its forces and movements, and by its doctrine of the conservation of energy, which teaches that amid all change and transformation there is something (though not necessarily a metaphysical thing) which persists.

Secondly, the view of evolution will vary according to the conception of that substance or real thing which enters into the process and constitutes its essential content. We have said that the problems of being and becoming are distinct, yet they cannot be discussed in perfect isolation. More particularly our idea of becoming must be determined by our notion of that existing reality which underlies the process.

It follows from our definition of evolution that its main problem is to conceive of material and mental development in their mutual relation. There are various ways of effecting this result. First of all, the material and

the mental may be regarded from a dualistic point of view as perfectly distinct kinds of reality. According to this view, physical evolution as taking place in the inorganic world, and mental evolution as unfolded in man's history, are two unconnected processes. Further, the fact of their correlation in organic development must either be left unexplained altogether, or can only be referred to the arbitrary action of some supernatural power.

Opposed to this dualistic conception of reality there are the monistic conceptions, which conceive of all parts of the process of evolution as homogeneous and identical. Of these the first is the materialistic, which assumes but one substance, and regards mind as but a property or particular manifestation of matter. On this view mental evolution is simply one phase of material, and the whole course of cosmic evolution may be described as a production of mind out of matter.

The next monistic conception is the spiritualistic, which assumes but one substance—mind, and resolves the reality of the material world into a spiritual principle. According to this way of looking at the world-process, material and mental evolution are but two continuous phases of one spiritual movement. From the operation of inanimate nature up to human history it is the same spiritual reality which manifests itself.

Finally, there is the monistic conception in the narrow modern sense, viz., that which views the material and the mental as two sides of one and the same reality. According to this view, physical evolution as manifested in the material world, and mental evolution as seen in human life, may each be regarded as a two-sided process. The first is simply that part of the process in which the material side is most conspicuous; the second, that in which the mental side is so. This monistic conception shows itself in a number of forms—from the crude semi-mythological conception of a cosmic organism or world-animal, which is at once body and soul, up to the metaphysical doctrine of one substance with two attributes.

In the third place, the form of the doctrine of evolution will vary according to the conception of the force or activity which effects the process. This point, though closely related to the last, is not identical with it. It is one thing to understand *what* it is that evolves itself, another thing to comprehend *how* the process is brought about. The latter point is of even greater importance for studying the various theories of evolution than the former.

There are two strongly contrasted modes of viewing all action or change. The first is drawn from the region of physical events, and views the change as conditioned by antecedents or efficient causes. This way of looking at change gives the mechanical view of evolution. The second is drawn from the region of our conscious volitions regarded as themselves undetermined by antecedent causes, and conceives of change as related to and determined by some end or purpose. This gives the teleological view of evolution. Although there is a natural affinity between the mechanical and the materialistic conception of evolution on the one side, and between the teleological and the spiritualistic on the other, they are not exactly co-extensive. The teleological view does not doubt imply the acceptance of a spiritual or quasi-spiritual principle; it refers the form and order of the world to the action of an intelligence (conscious or unconscious) which combines particular events as means to some comprehensive end. The mechanical view, on the other hand, does not necessarily imply the acceptance of a material principle as the one reality. It is applicable to mind as well as to body. Thus, on the determinist theory, mental development is as much a mechanical process as physical development.

Adopting this distinction between the mechanical and teleological conception of evolution as the essential one, we may roughly classify the various systems of evolution under the three heads:—those in which the mechanical view predominates; those in which the teleological view predominates; and those in which the two views are combined in some larger conception.

The mechanical interpretation may first of all be combined with a dualistic theory. Such would be Descartes' doctrine of evolution if it had been fully worked out on its mental side. It has been observed, however, that the mechanical view is naturally allied to the materialistic theory. Systems of evolution which arise out of this combination seek to resolve all appearance of order and purpose in the physical world into the combined effect of elementary forces or actions. They adopt a mechanical conception of organic bodies and their processes. Finally, they regard mental life and its evolution as a process of combination exactly analogous to that of physical evolution and closely correlated with a certain mode of this process. In this way they lead to a materialistic conception of man's origin and development as conditioned by physical circumstances and organic changes.

This thorough-going materialistic way of viewing the origin and formation of the world finds its greatest obstacle in the genesis of conscious life. Hence it has from the earliest been modified in one or two ways so as to provide a primordial source of sensation and thought, without, however, abandoning a strictly mechanical view of the process. The first and crude form in which this modification presents itself is that of an original, thin, quasi-material substance (as ether), which may serve as the raw material, so to speak, of individual minds. The formation of these minds, however, is regarded as a strictly mechanical process, and related to that of physical evolution in the narrow sense. This theory of the origin of mental existence clearly approaches one of the forms of the doctrine emanation already referred to. We have only to conceive of the primordial mental substance as the infinite being, transcending our finite world, and the doctrine becomes one of emanation. The second modification of this view consists in the theory that all parts of matter are endowed with sensibility, but that the sensations are not themselves (as teleological factors) the productive force in the process, but are rather the appendages of the real factors. The world forms itself according to strictly mechanical laws of combination, and the evolution of the various grades of mind in the organic region takes place by a composition of elementary feelings exactly similar to the process of material combination.

Before leaving the systems which are based on the mechanical view, a bare allusion must be made to a recent suggestion that all things consist ultimately of mental substance ("mind-stuff"), which combines itself both in the material world and in the region of conscious mind according to strictly mechanical principles.

The second mode of viewing the process of evolution subordinates the idea of physical cause to that of final cause. The force which effects the continual production and transformation of things is conceived of, more or less distinctly, after the analogy of a rational impulse toward an end, and the process is regarded as determined or conditioned by this element of purpose.

This teleological view of evolution may be found in a number of systems of nature, which look on the material world as at once bodily and vital, or spiritual, though it is often difficult to say whether any particular system should be called dualistic or monistic (in the narrow sense). Thus, we have the evolution of the physical world referred to a vital principle which pervades

natter, and of which the essential nature is productivity, to a formative plastic principle, which molds the dead material into various shapes, to an organizing cosmic force, and so on. In all these conceptions, which appear to aim more especially at an explanation of organic forms and life, the element of purpose appears in a nascent shape. Nature is personified as a worker, who aims, unconsciously and instinctively, at some dimly described end, such as the most varied production, the progressive manifestation of life, and so on. In some of these systems, notably in the Aristotelian, the genesis of conscious mind is explained, along with that of organic life, by means of the supposition, that mind is but the formative principle of the individual organism.

The idea of purpose becomes more definite, and, at the same time, a further step is taken toward the explanation of mental life, as a development out of physical, in those systems which project a distinct spiritual principle into nature. The way in which this is frequently done, is by means of the theory of a world-soul, which animates the whole of the material world, and directs all parts of its evolution. When this spiritual principle is regarded, not only as the formative force, but also as the substantial source of conscious mental life, which has eternally coexisted with matter, we have, as already remarked, a pantheistic conception of evolution, which, like another and cognate conception, already referred to, approximates to one form of the emanation theory.

The full development of this way of regarding the world and its evolution as the work of a spiritual principle aiming toward an end is to be found in certain doctrines of Objective Idealism, which resolve all material existence into a mode of mental existence — will and thought. These theories clearly simplify the conception of evolution to the utmost, by the identification both of the substantial reality which enters into all parts of the world-process, and of the rationale of all parts of the process itself. In the systems now referred to, the mechanical idea is wholly taken up into the teleological. Purpose is the highest law of things, and it is one purpose which manifests itself through all stages of the world's evolution — in the region of inorganic nature, of organic life, and of human history. The first genesis of conscious life is explained as a particular moment in this process. In some spiritualistic systems an attempt is made to combine the mechanical (causal) and teleological ideas under the notion of logic development. Yet as a rule the teleological way of conceiving the process predominates.

The systems which seek to combine the teleological and the mechanical view of evolution are for the most part based on the monistic idea that the material and the mental are two equally real aspects of one thing. It is clear that this conception of reality provides a way of doing justice to both modes of looking at evolution. In this manner the systems now spoken of are able to regard all parts of evolution as identical in nature, being alike links in a chain of purposeful effects.

This way of regarding the world in its process of evolution will vary according to the particular view of the one reality underlying material and mental phenomena. Thus we may have a universalistic conception of evolution as the two-sided activity of one undivided substance. This idea passes easily into a pantheistic view of the world-process as determined by a divine reason which is also the principle of necessity. In the second place, we may have an individualistic conception of this two-sided process, according to which the world arises out of the unceasing activity of an indefinite number of elements endowed with motion and sensation, and so comprehending a mechanical and a teleological factor.

It has already been remarked, however, that this conception may be combined with a strictly mechanical view of evolution.

The doctrine of evolution in its finished and definite form is a modern product. It required for its formation an amount of scientific knowledge which could only be very gradually acquired. It is vain, therefore, to look for clearly defined and systematic presentations of the idea among ancient writers. On the other hand, nearly all systems of philosophy have discussed the problems underlying evolution. Such questions as the origin of the cosmos as a whole, the production of organic beings and of conscious minds, and the meaning of the observable grades of creation, have from the dawn of speculation occupied men's minds; and the answers to these questions often imply a vague recognition of the idea of a gradual evolution of things.

The honor of working out the theory of evolution on a substantial basis of fact belongs to England. Of the writers who have achieved this result Mr. Darwin deserves the first notice. Though modestly confining himself to the problem of accounting for the evolution of the higher organic forms out of the lower, Mr. Darwin has done much to further the idea of a gradual evolution of the physical world. The philosophic significance of the hypothesis of natural selection, especially associated with Mr. Darwin, is due, as Professor Helmholtz points out, to the fact that it introduces a strictly mechanical conception in order to account for those intricate arrangements known as organic adaptations which had before been conceived only in a teleological manner. By viewing adaptations as conditions of self-preservation, Mr. Darwin is able to explain how it is that the seemingly purposeful abounds in organic nature. In so doing he has done much to eliminate the teleological method from biology. It is true that, in his conception of seemingly spontaneous variations and of correlation of growth, he leaves room for the old manner of viewing organic developments as controlled by some internal organizing principle. Yet his theory, as a whole, is clearly a heavy blow to the teleological method. Again, Mr. Darwin has greatly extended the scope of mechanical interpretation, by making intelligible, apart from the coöperation of intelligent purpose, the genesis of the organic world as a harmonious system of distinct groups, a unity in variety, having certain well-marked typical affinities. How greatly this arrangement has helped to support the idea of an ideal plan, we have had occasion to observe. Mr. Darwin in his doctrine of the organic world as a survival refers this appearance of systematic plan to perfectly natural causes, and in so doing he gives new meaning to the ancient theory that the harmony of the world arises out of discord. Once more, Mr. Darwin's hypothesis is of wide philosophic interest, since it helps to support the idea of a perfect gradation in the progress of things. The variations which he postulates are slight, if not infinitesimal, and only effect a sensible functional or morphological change after they have been frequently repeated and accumulated by heredity.

Mr. Darwin's later work, in which he applies his theory of the origin of species to man, is a valuable contribution to a naturalistic conception of human development. The mind of man in its lowest stages of development is here brought into close juxtaposition to the animal mind, and the upward progress of man is viewed as effected by natural causes, chief among which is the action of natural selection. Mr. Darwin does not inquire into the exact way in which the mental and the bodily are connected. He simply assumes that, just as the bodily organism is capable of varying in an indefinite number of ways, so may the mental faculties vary in-

definitely in correspondence with certain physical changes. In this way he seeks to account for all the higher mental powers, as the use of language and reason, the sentiment of beauty, and conscience.

Finally, Mr. Darwin seeks to give a practical and ethical turn to his doctrine. He appears to make the end of evolution the conscious end of man's action, since he defines the general good as "the rearing of the greatest number of individuals in full health and vigor, and with all their faculties perfect under the conditions to which they are subject." Further, in his view of the future of the race, Mr. Darwin leans to the idea that the natural process which has effected man's first progress must continue to be an important factor in evolution, and that, consequently, it is not well to check the scope of this process by undue restraints of population, and a charitable preservation of the incompetent.

Mr. A. R. Wallace, who shares with Mr. Darwin the honor of establishing the doctrine of natural selection, differs from the latter in setting much narrower limits to the action of this cause in the mental as well as the physical domain. Thus he would mark off the human faculty of making abstractions, such as space and time, as powers which could not have been evolved in this way. Mr. Wallace leans to the teleological idea of some superior principle which has guided man in his upward path, as well as controlled the whole process of organic evolution. This law is connected with the absolute origin of life and organization.

The thinker who has done more than anyone else to elaborate a consistent philosophy of evolution on a scientific basis is Mr. Herbert Spencer. First of all he seeks to give greater precision to the conception of this universal process. Evolution is a change from the homogeneous to the heterogeneous, from the indefinite or undetermined to the definite or determined, from the incoherent to the coherent. Again, Mr. Spencer seeks to show that the causes of evolution are involved in the ultimate laws of matter, force, and motion, among which he gives great prominence to the modern doctrine of the conservation of energy. Thus the rationale of the process shapes itself to Mr. Spencer as a distinctly mechanical problem. He sets out with the assumption of a limited mass of homogenous matter acted upon by incident forces, and seeks to show how, by help of two laws—namely, the instability of the homogeneous, and the multiplication of the effects of any such incident force—the process known as evolution is brought about. This process is illustrated in the genesis of the solar system, for the explanation of which Mr. Spencer makes use of the nebular hypothesis, in the formation of our planet, as well as the development of organic and mental life. Mr. Spencer does not, however, conceive of this process of evolution as unlimited in time. As in the development of the individual organism, so in that of organic beings as a whole, of the earth, and of the solar system, there is a conflict between the forces of which the action is integrating or consolidating and those of which the action is disintegrating. The process of evolution always tends to an equilibrium between these conflicting forces and ultimately to a dissolution of the products of evolution. Thus the solar system is a moving equilibrium which is destined to be finally dissipated into the attenuated matter out of which it arose. Mr. Spencer thus approaches the earliest theories of cosmic evolution when he tells us that vast periods in which the forces of attraction prevail over those of repulsion, alternate with other vast periods in which the reverse relation holds. The mechanical theory of evolution thus laid down in the *First Principles* is applied in Mr. Spencer's later works to the full explanation of organic, mental, and social evolution.

The full explanation of the processes of inorganic evolution finds no place in the writer's system. Mr. Spencer seeks, in the *Principles of Biology*, to conceive of organic bodies and their actions in mechanical terms. Life is regarded as essentially a correspondence of internal actions in the organism to external actions proceeding from the environment, and the object of Mr. Spencer's volumes is to explain on mechanical principles the growth of this correspondence from the lowest to the highest. He excludes all consideration of the question how life first arose, though it is clear that he regards the lowest forms of life as continuous in their essential nature with sub-vital processes.

It is in the later volumes dealing with mental and social evolution, that Mr. Spencer's exposition becomes most interesting to the student of philosophy. In the *Principles of Psychology*, he seeks to deal with mind as an aspect or correlate of life which begins to manifest itself when the process of adjustment to environment, in which all life consists, reaches a certain degree of complexity. Mr. Spencer indulges in no hypothesis respecting the universal coexistence of sentience with matter and force. He thinks we must accept the distinctions which common-sense has established, and so limit feeling or consciousness to organic beings endowed with a nervous system. Thus, just as he does not seek to explain the first appearance of life as a whole, so he does not seek to explain the first dawn of mental life. Mr. Spencer's unit of consciousness is the blurred undetermined feeling which answers to a single nervous pulsation or shock. Assuming this he seeks to trace the gradual evolution of consciousness. Sensations arise by a number of rapid successions of such elementary feelings variously combined, and all more composite states of mind arise by a similar process of combination of these feelings. Thus mental evolution is a progressive composition of units of feeling in more and more complex forms, and united by more complex relations. Mr. Spencer's conception of mind thus excludes all fundamental distinctions of faculty. Instinct, memory, reason, the emotions and volitions, alike develop themselves in divergent directions out of a common elementary process. They are, moreover, all related to one and the same biological process, being incidental accompaniments of the actions by which the organism responds and adjusts itself to the forms of its environment. According as these actions are more complex, and consequently less immediate, the mental actions which accompany them vary in character from reflex action up to deliberate volition, from the most simple presentative feeling or sensation up to the most complex representative and re-representative feeling or emotion. It would be impossible to point to all the applications which Mr. Spencer has made of his principle of evolution to the questions of psychology. We may just mention among other points of interest his attempt to explain the innate intuitions of space, moral right, etc., as mental dispositions handed down from progenitors and embodying the uniform experience of many generations, his ingenious endeavor to account for the coincidence between pleasures and pains and actions beneficial and injurious to the organism, and his conception of the aesthetic interest as a growth out of the play-impulse, which is the tendency of activities that have become developed beyond the immediate needs of existence to vent themselves.

To Mr. Spencer, as to Mr. Darwin, the doctrine of evolution seems to supply the end of conduct. He conceives of morality as essentially an observance of the laws of life, the individual and the collective.

